MITSUBISHI

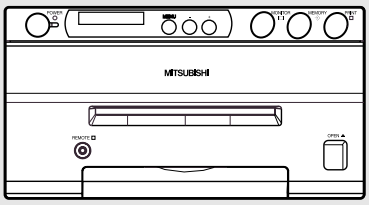
CE

COLOUR VIDEO COPY PROCESSOR

MODEL

CP900E

OPERATION MANUAL



THIS OPERATION MANUAL IS IMPORTANT TO YOU.
PLEASE READ IT BEFORE USING YOUR COLOUR VIDEO COPY PROCESSOR.

COLOUR VIDEO COPY PROCESSOR

This video copy processor complies with the requirements of the EC Directive 89/336/EEC, 73/23/EEC, 93/42/EEC and 93/68/EEC.
The electro-magnetic susceptibility has been chosen at a level that gains proper operation in residential areas, on business and light industrial premises and on small-scale enterprises, inside as well as outside of the buildings. All places of operation are characterised by their connection to the public low voltage power supply system.

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SAFETY PRECAUTIONS

In the interest of safety, please observe the following precautions:

POWER REQUIREMENT

This Colour Video Copy Processor is designed for operation on 220-240V, 50Hz AC. Never connect to any outlet or power supply having a different voltage or frequency.

WARNING: THIS APPARATUS MUST BE EARTHED.

AVERTISSEMENT: CET APPAREIL DOIT ETRE MIS A LA TERRE.

PROTECTIVE MEASURES

IF ABNORMALITIES ARISE, ...

Use of the unit during emission of smoke or abnormal sounds (without adopting countermeasures) is dangerous. In such a case, unplug the power cord from the source outlet immediately, and request maintenance service from the sales dealer.

NEVER INSERT ANY OBJECT INTO THE UNIT

Foreign objects of any kind inserted into this unit constitute a safety hazard and can cause extensive damage.

DO NOT PLACE ANYTHING ON THE COLOUR VIDEO COPY PROCESSOR

Heavy objects placed on the Colour Video Copy Processor can cause damage or obstruct proper ventilation.

PROTECT THE POWER CORD

Damage to the power cord may cause fire or shock hazard. When unplugging, hold by the plug only and remove carefully.

DO NOT PLACE WATER CONTAINERS ON THE UNIT

Do not place flower vases, and other water-holding containers on the device. If, for some reason, water seeps to the inside of the unit, unplug the power cord from the source outlet, and contact the sales dealer. If used without corrective measures, the unit may be damaged.

“In the interest of safety, avoid handling of liquids near the unit.”

DO NOT REMOVE THE CABINET

Touching internal parts is dangerous, besides, it may lead to malfunction. Contact the sales dealer to carry out internal checks and adjustments. Before opening the cover for eliminating a jammed paper, etc., be sure to disconnect the power cord plug.

UNPLUG THE POWER CORD DURING A LONG ABSENCE

Turn off the MAIN power switch and unplug the power cord during a long absence.

WHEN TRANSPORTING THE UNIT

When transporting the unit, remove the ink cassette and paper. Make sure to slide the printing unit lock switch to the lock position.

BE CAREFUL AROUND PRINT PAPER EXIT SLOT

Do not insert your hand or any material into the paper exit slot during printing.
Do not touch the cutter blade inside the paper exit slot.
Otherwise, your finger will be injured.

DO NOT TOUCH THE THERMAL HEAD

Do not touch your hand to the thermal head (located inside the unit).
The thermal head is heated to high temperature.
This may cause injury.

BE CAREFUL WITH THE PRINTING UNIT

Do not move the unit while the printing unit is sliding out. This may cause injury.
Be careful not to catch your finger in the printing unit while the printing unit is being retracted into the unit.

CONNECTION CABLES

Use the provided power cord. When connecting the unit with an equipment with RS-232C interface, use the RS-232C crossover cable.

INSTALLATION LOCATIONS

MAINTAIN GOOD VENTILATION

Ventilation slots and holes are provided on this unit. Place the unit on a hard and level surface and locate at least 10 cm from walls to insure proper ventilation. When putting the unit on the system rack, take a space between the unit and the back of the rack.

UNSUITABLE LOCATIONS

Avoid shaky places or hot-springs areas where hydrogen sulfide and acidic ions are likely to be generated.

PLACES WITH HIGH HUMIDITY AND DUST

Do not place the unit locations with high humidity and dust. They can cause extensive damage. Avoid places where unit is likely to be exposed to oily fumes and vapours.

PLACES NOT LIKELY TO BE EXTREMELY HOT

Places exposed to direct sunlight, or near heating appliances can attain extremely high temperatures, which may deform the cabinet, or can become a prime cause of damage.

PLACE THE UNIT ON A HORIZONTAL LEVEL

The unit is likely to be affected if it is placed in slanted conditions or in unstable places.

PROTECT AGAINST DEW FORMATION

In extremely cold regions, if the unit is moved quickly from an extremely cold place to warmer one, dew is likely to be formed. If dew is formed, printing is not possible.

OPERATING AMBIENT TEMPERATURE RANGE

The operating ambient temperature range is 41°F - 104°F (5°C to 40°C), and humidity of 20 - 80%. When using the unit on the system rack, be sure to keep this ambient temperature inside the rack.

FOR LONG OPERATING LIFE

UNSUITABLE MATERIALS FOR THE COLOUR VIDEO COPY PROCESSOR

Coat flaking and deformation are likely to occur if the unit is wiped with chemical dusters, benzine, thinner or any other solvent, if rubber or PVC items are left in contact with the unit for extended duration, or if the unit is sprayed with insecticide.

CARE OF THE CABINET

Unplug and clean with a soft cloth slightly moistened with a mild soap and water solution. Allow to dry completely before operating. Never use petroleum base solutions or abrasive cleaners.

HEAD ABRASION

The thermal head, like the video head, wears out. When it is abraded, it becomes hard to print out fine details of the picture. In such a case, it is necessary to replace the thermal head. Consult with the sales dealer for replacing the head.

CONNECTING DEVICES

Read thoroughly “Operating Precautions” of the instruction booklets for the devices connected with the Colour Video Copy Processor.

The power cord must be disconnected after printing is over.

CAUTION ON RELOCATING

When transporting this unit, make sure it is not likely to be subjected to impacts. They can be a prime cause for damage. Further, make sure to disconnect the power cord from the power outlet, and the cables from the connected devices.

SAFETY CHECKS

Periods: According to the recommendations of the manufacturer of the medical devices.

Scope:
a) Visual inspection
Housing, leads, controls, displays, labels/markings, accessories, operation manual.
b) Functionality test
Testing of functions (according to operation manual) as well as compatibility and usability of devices and accessories.
c) Electrical test
Testing of electrical safety of the system according to EN60601-1.

High humidity or dust

Avoid locations with high humidity and dust in order to avoid malfunctioning of the device.

Also avoid locations subject to corrosive gasses and smoke.

Heat

Direct sunlight, heaters or other heat sources may deform the housing and subsequently cause malfunctioning.

TECHNICAL DESCRIPTIONS

The supplier will make available on request such circuit diagrams, component part lists, descriptions, calibration instructions or other information which will assist the USER's appropriately qualified technical personnel to repair those parts of the EQUIPMENT which are classified by the manufacturer as repairable.

The use of ACCESSORY equipment not complying with the equivalent safety requirements of this equipment may lead to a reduced level of the resulting system
Consideration relating to the choice shall include:
- use of the accessory in the PATIENT VICINITY.
- evidence that the safety certification of the ACCESSORY has been performed in accordance to the appropriate EN60601-1 and/or EN60601-1-1 harmonized national standard.

The transportation and storage environmental conditions are:
Temperature : -20°C - +60°C (-4°F - +140°F)
Humidity : 90% RH or less at 40°C (104°F)
Note: The above transportation environmental conditions indicate the storage environmental conditions during transport.

OTHER CAUTIONS

Dust or other foreign matter adhering to the print paper or the ink cassette, or deformation resulting from exposure to extremely low or high temperatures could cause loss of colour, uneven colour or lines, or wrinkles in the print images.

If there is noise or vibration in the VCR still-image or playback picture, the print image may be distorted or the upper part may be crooked.

NOTE:
YOUR UNDERSTANDING IS REQUESTED FOR THE LOSS OF IMAGES IN MEMORY DUE TO THE SUDDEN OCCURRENCE OF A MALFUNCTION.

As for paper sheet set, refer to Page 17, "Paper sheet set".

THERMAL PAPER

- When the remaining length of the paper is about 25cm (10"), a color belt appears at the paper end. Prepare for replacement of the paper. If the remaining paper length is less than 25cm (10"), printing becomes uneven due to the uneven paper core surface.
- When the printed paper is touched by wet hand, the print may be discoloured.
- When the paper runs out during printing, the printing operation stops and "CHANGE PAPER" is displayed by the LCD on the front panel. Install new paper at this time.
- Store the printed paper in a place with low humidity free from a direct sunlight.
- If the paper absorbs nonvolatile organic solvents (alcohol, ester, ketone, etc.) the print may be discoloured. Particularly, if the paper comes in contact with soft vinyl chloride such as a transparent tape, it quickens discoloration.
- Do not use paper other than the specified one.
- Immediately after the paper is replaced, 2-3 images may be printed with a blank part due to hand's dust or oil.
- Avoid a direct sunlight or a place near a heater, and store the paper in a place with 30°C (86°F) or lower temperature and 35-80% RH.
- When the paper is rapidly transferred from a cool place to a hot place, a vapour or a dew is generated on the paper surface causing paper jam or degraded printing quality.
- A finger print or dust on the paper surface may degrade the printing quality.

Note:
Mitsubishi brand thermal paper is specially treated with an antistatic coating against thermal head damage caused by static-electricity discharge.
The use of non-treated paper may cause premature head failure in your product.

This product is to be employed with medical equipment, just for reference purpose, not for medical diagnostic purpose.

SPECIAL FEATURES

AVAILABLE IN VARIOUS MEDICAL FIELDS, INCLUDING ENDOSCOPY DIAGNOSIS

3 kinds of colouring characteristics (gamma curve) are employed, which are the best for medical diagnostic devices, including endoscope requiring precise images and ultrasound diagnostic equipment etc. The colour is reproducible for each diagnostic equipment with easy operation. Each gamma curve is adjustable for each user flexibly.

2 PRINT SIZES ARE AVAILABLE ACCORDING TO THE PURPOSE

2 printing sizes, L size (max.110 x 160 mm) and S size (max.110 x 105 mm), are selectable.

MULTI PRINT FUNCTION BY THE CAPACIOUS FRAME MEMORY

As this unit has 3 frame memories, it can store an image during its printing. So the time of diagnosis will be shorten remarkably.

HIGH SPEED PRINTING

Printing speed is approx. 12 seconds (in S size print). Using a rollpaper shortens the time for installing and removing.

LARGE CAPACITY OF PRINTING

Maximum number of printing (S size) is 200 printings per a roll paper. The large capacity of rollpaper printing reduces a time of exchanges.

POSSIBLE OF PRINTING IN HIGH QUALITY

High quality print is available in sublimation dye thermal method which is superior in repeatability of images. It also employs 256 gradients and about 16,700,000 colours in each YMC.

325 PPI HIGH RESOLUTION

325 PPI (Pixel Per Inch) high resolution clears the image data. Precise illustrations and photo images can be printed sharply.

MULTI PRINT FOR VARIOUS DEMANDINGS

2, 4, and 16 images of multi print are available. Several multi print modes are selectable according to demanding.

UNIQUE COLOUR IMAGE CONTROL SYSTEM WITH THE IC CHIP BUILT IN INK SHEET ROLLS

By setting the supplied IC chip to ink cassette, the remaining of ink sheet can be displayed. It also controls the colours of the printing images.

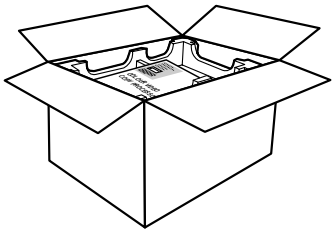
WIDE COMPATIBILITY WITH A VARIETY OF INTERFACE AND SYSTEMS

(1) Input and output control signals from RS-232C/Rear remote interfaces
(2) Fixing function to internal sync. signal avoiding the loop phenomena of sync. signal
(3) Stroboscope sync. function responding to fundus camera system
(4) Image adjusting function such as contrast, brightness, depth etc. of printing image
(5) Capable of storing 3 kinds of setting and adjustment according to each using condition.

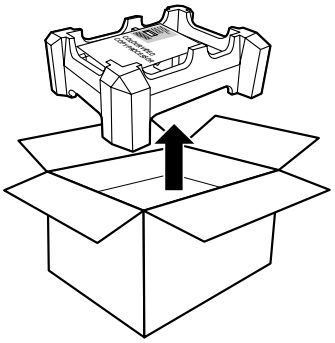
UNPACKING

Take the unit out of the box by the following procedures. Make sure to check the contents.

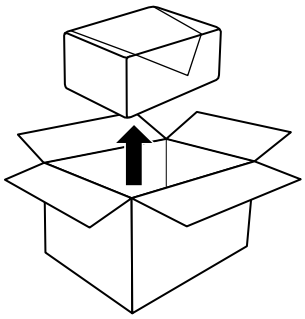
1 **Open the top of the box.**



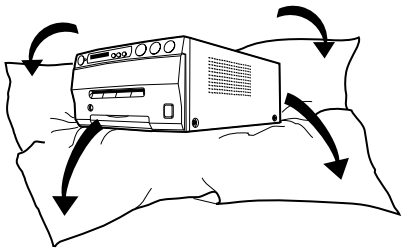
2 **Remove the cushion with contents.**
Be careful not to drop the contents.



3 **Take the unit out of the box carefully.**
Make sure to keep the unit horizontally.

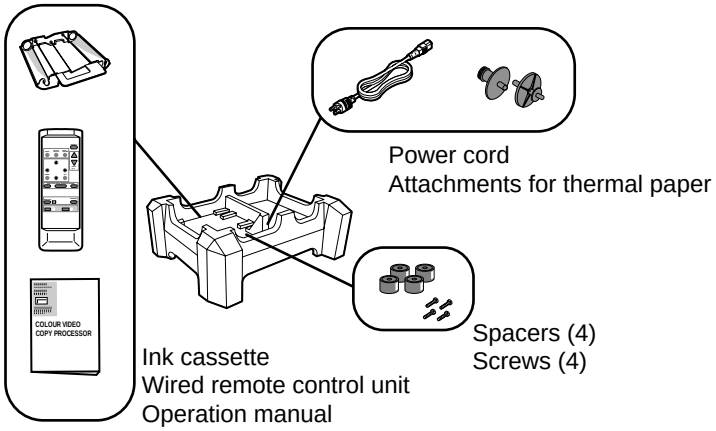


4 **Unwrap the packing.**

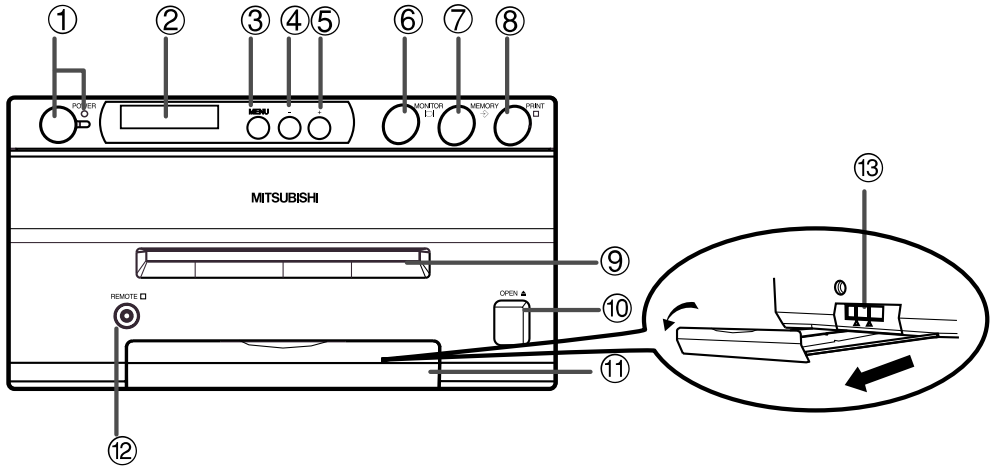


■ CONTENTS

Make sure to check the supplied contents on the cushion.



FRONT PANEL



① POWER BUTTON(INDICATOR)

Press to turn on power. Press again to turn off power. When the power is turned on, the indicator illuminates.

② LCD (LIQUID CRYSTAL DISPLAY)

Indicates input signal settings and various function modes and settings. Use Menu on the monitor or LCD for setting functions. See pages 36 - 37.

③ MENU BUTTON

Press for colour adjustment. The item will be switched in order of ;
SELECT COLOR/B&W→BRT→CONT→R-SUB→G-SUB →B-SUB→CENTER[+]→CANCEL[+]→SET[+]→SELECT COLOR/B&W. (When selecting B&W, R-SUB, G-SUB, B-SUB change to Y-SUB, M-SUB, C-SUB.)
To go back to the normal screen, press ⑤PLUS(+) button while SET[+] is selected. The above menu is displayed on the monitor screen. See page 40.

④ MINUS(-) BUTTON

Press to decrease the value of each setting item. To set the value, select SET[+] with ③MENU button and press ⑤PLUS(+) button.

⑤ PLUS(+) BUTTON

Press to increase the value of each setting item. To set the value, select SET[+] with ③MENU button and press this button.

⑥ MONITOR BUTTON

Switches the display on the monitor. When this button is pressed, the picture on the monitor screen switches between the picture of the input signal (source image) and the memorized image.
When pressing MEMORY button while holding this button, print paper will be fed and cut automatically, and the mechanism will be initialized. Make sure to press MONITOR button first, or a new image will be memorized.

⑦ MEMORY BUTTON

Press to memorize the image to be printed. When signal is not inputted, memory is not available.

⑧ PRINT BUTTON

Press to print the image memorized by the MEMORY button. The image on the monitor screen switches to Source image when printing starts. When image is not memorized, printing is not available.

⑨ PRINT OUTLET

The printed paper comes out here.
Do not put any objects in front of the outlet.

⑩ OPEN BUTTON

Press to slide out the printing mechanism. Make sure to unlock ⑬PRINTING UNIT LOCK SWITCH. When it is not working, turn off the power once. Then try to press this button again.
Open the mechanism to load paper and ink cassette or to clear a paper jam.

⑪ TRAY

Holds the printed paper which was come out from the print outlet. Press down the knob to pull the tray. Make sure to pull it out before using this unit.

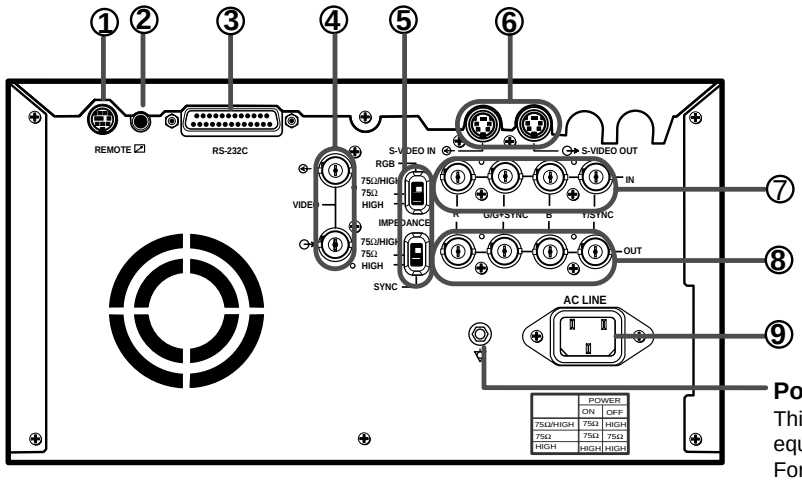
⑫ REMOTE TERMINAL

Connects the remote control unit supplied.

⑬ PRINTING UNIT LOCK SWITCH

Locks the printing unit.
Shift the switch to the left (LOCK side) to lock and to the right (UNLOCK side) to unlock.
This unit is locked when shipping. When transporting this unit, make sure to lock the unit.

REAR PANEL



Potential equalization connector
This is used to equalize the potential of the equipment connected to the unit.
For details, refer to the installation instruction of the equipment to be connected.

① REMOTE TERMINAL 2 (MINI DIN 8 PIN)
Memorizing images and printing is available by the remote signal inputted through this terminal. It is necessary to make a circuit for remote control unit to use the function. See pages 32-33.

② REMOTE TERMINAL 1 (STEREO JACK)
Memorizing images is available by the remote signal inputted through this terminal. It is necessary to make a circuit for remote control unit to use the function. See page 31.

③ RS-232C PORT
Use these terminals to connect this unit to a device equipped with RS-232C interface. See pages 15-16 for connection.

④ VIDEO SIGNAL INPUT/OUTPUT TERMINAL
Use these terminals to connect this unit to VIDEO signal equipment. See pages 13.

⑤ IMPEDANCE SWITCH [IMPEDANCE RGB SYNC.]
This is a 75ΩHIGH/75Ω/HIGH impedance selection switch for RGB or Sync. signal.

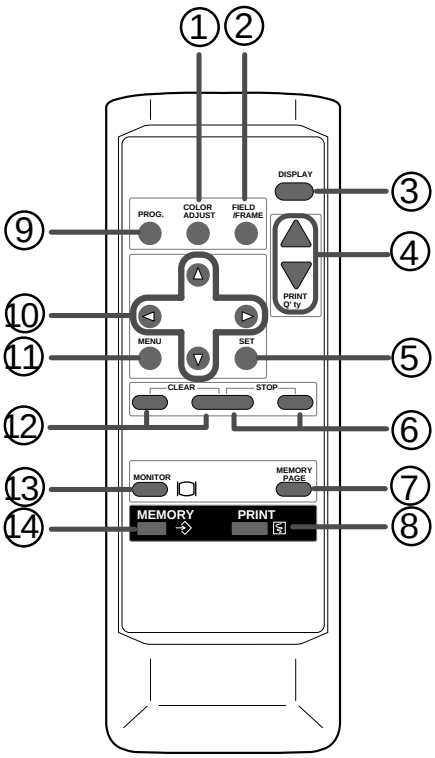
⑥ S-VIDEO INPUT/OUTPUT TERMINAL
Use these terminals to connect to S-VIDEO signal equipment. See pages 13.

⑦ RGB ANALOG INPUT TERMINALS [R G/G+SYNC B H+V-SYNC]
This is a BNC type input terminal for a RGB analog signal. The sync. signal can be automatically selected between H/V composite and SYNC. ON GREEN (sync. signal imposed on the green video signal) signals. See page 14.

⑧ RGB ANALOG OUTPUT TERMINALS [R G/G+SYNC B H+V-SYNC]
This is a monitor output terminal for a RGB analog signal. The sync. signal can be selected between 0.3V (H+V-SYNC) and TTL (H+V-SYNC) signals. See page 14.

⑨ AC LINE SOCKET
Connects to the provided power cord. Insert the cord firmly.

REMOTE CONTROL UNIT



① COLOR ADJUST BUTTON

Press to display the COLOR ADJUST menu. See page 40.

② FIELD/FRAME BUTTON

Press to switch FRAME and FIELD mode of input signals. The selected mode is displayed on the monitor screen and LCD. FRAME is good for high quality printing of still images, and FIELD is good for printing fast movement images. See page 22.

③ DISPLAY BUTTON

Press to display the set condition on the monitor screen. Press again to switch off the display.

④ PRINT QUANTITY ▲, ▼ BUTTONS

Use to set the number of copies to be printed. The set number of copies is displayed on the monitor and on the front LCD. Press ▲ to increase the number and ▼ to decrease the number.

When pressing ▲ or ▼ button during printing, the counter becomes “1” and continuous printing is cancelled. It also cancels the reserved printing. See page 27.

⑤ SET BUTTON

Press to go to SAVE PRG. Repress to memorize the values and exit the MENU mode. See page 34-35.

⑥ STOP BUTTONS

Press to cancel the printing process and start mechanical initializing. When pressing these buttons during displaying MAIN MENU, SERVICE MENU will be displayed.

⑦ MEMORY PAGE BUTTON

Use to select the image memorized . The memory page is switched every time this button is pressed. The selected memory page mark illuminates.

⑧ PRINT BUTTON

Press to print the image memorized by the MEMORY button.

⑨ PROGRAM BUTTON

Press the PRG. button to select between 3 types of user presets. Functions previously set with the MENU can be stored into 1 of 3 memories and recalled. Programs cannot be changed during printing. It may take longer to change the program.

⑩ ▲, ▼, ◀, ▶ BUTTONS

Use to set the MENU display. Values are increased/ decreased and the cursor position is changed with these four buttons. These buttons are also used to select one of memorized images. See page 38 and 45.

⑪ MENU BUTTON

Press to display MAIN MENU used for various settings. See pages 34-35.

⑫ CLEAR BUTTONS

Press to eliminate all or a part of memorized images.

⑬ MONITOR BUTTON

Press to switch the image of the input signal and the memorized image being displayed.

⑭ MEMORY BUTTON

Use to memorize the image to be printed. The memorized image is displayed on the monitor screen for one second, then the image of the input signal is displayed.

CONNECTIONS

The functions of this unit can be set by the menu screens displayed on the monitor.

- Connection with a monitor
- Connection with VIDEO/S-VIDEO signal equipment
- Connection with RGB analog signal equipment
- Connection with RS-232C equipment

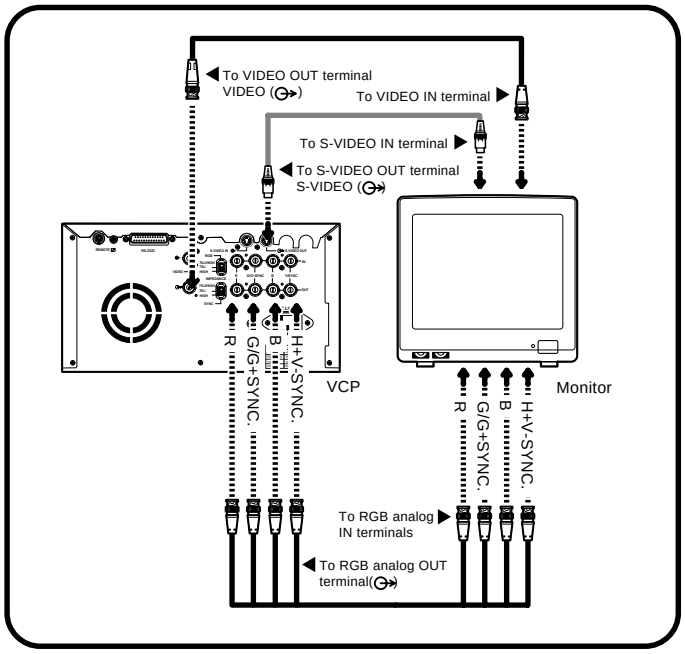
Connect this unit with a monitor to check the images to be printed and the images stored in memory.
The following examples show the connections with a video signal, S-video signal,RGB analog signal and RS-232C equipment.
Connect with the necessary signal equipment.

Make sure to turn off the power of the unit and connecting equipment before connection.

CONNECTION WITH A MONITOR

Make sure to turn off the power before setting.

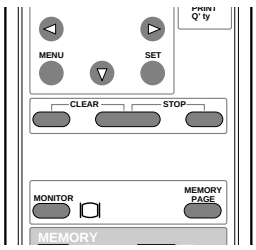
(EXAMPLE)



NOTE

When the sync. polarity or sync. signal of a monitor to be connected is not adjusted to the initial setting of this unit, the image may not be displayed correctly. In this case, adjust the sync. polarity and sync. signal output to the monitor. When the image is displayed correctly, the setting is not required. (Refer to the operation manual of the monitor as for the sync. polarity and sync. signal of the monitor.)

- The sync. polarity and sync. signal is set by the menu displayed on LCD.



1 Press MENU button.

MAIN MENU is displayed.

M; INPUT rgb

2 Press STOP button on remote control unit.

SERVICE MENU is displayed.

S;SYSTEM [>]

3 Press ▼ button to select INPUT menu.

4 Press ▶ button.
INPUT menu is displayed. Set the monitor polarity with "IN SYNC" on this menu.

5 Press ▲ or ▼ button to select "IN SYNC".
The sync. signal level being selected, for example, "ttl" is displayed.

6 Set the sync. signal level according to the equipment to be connected. Press ◀ or ▶ button to select "ttl", "sog" or "0.3v".

ttl Inputs the TTL level sync signal.
sog Inputs the Sync. On Green level sync signal.
0.3v Inputs the 0.3Vp-p level sync signal.

7 Press SET button.
The function is set, and SERVICE MENU is displayed.

8 Press ▲ or ▼ button to select OUTPUT menu.

9 Press ▶ button.
OUTPUT menu is displayed. Set the signal output with "OUT SYNC" and "RGB SOG" on this menu.

10 Press ▲ or ▼ button to select first "OUT SYNC" . Press ◀ or ▶ button to select "auto" or "user".
The sync. signal setting being selected, for example, "auto" is displayed.

auto Outputs the same sync signal as IN SYNC setting.
user Sets the signal output.

11 When setting "user" on 10, select second "OUT SYNC," and set the sync.signal level according to the equipment to be connected. Press ◀ or ▶ button to select "0.3v" or "ttl."

0.3v Outputs the 0.3Vp-p sync signal.
ttl Outputs the TTL level sync signal.

12 Press ▲ or ▼ button to select third "OUT SYNC".

13 Set the monitor's polarity according to the equipment to be connected. Press ◀ or ▶ button to select "nega" or "posi."

14 Press ▲ or ▼ button to select “RGB SOG ”.

SO;RGB SOG off

15 Press ◀ or ▶ button to select “on” or “off”.

You can select whether Sync. ON Green signal is added to the output signal or not. When “on” is selected, Sync. ON Green signal is output and when “off” is selected, only Green signal is output. Select “on” or “off” according to the monitor to be connected.

off Only Green signal is output.
on Sync. On Green signal is output.

16 Press SET button.

SERVICE MENU is displayed and “SAVE” is indicated.

SER;SAVE prg.1

17 Press ◀ or ▶ button to memorize the setting in prg.1, 2, or 3. Select “CANCEL” to cancel the setting.

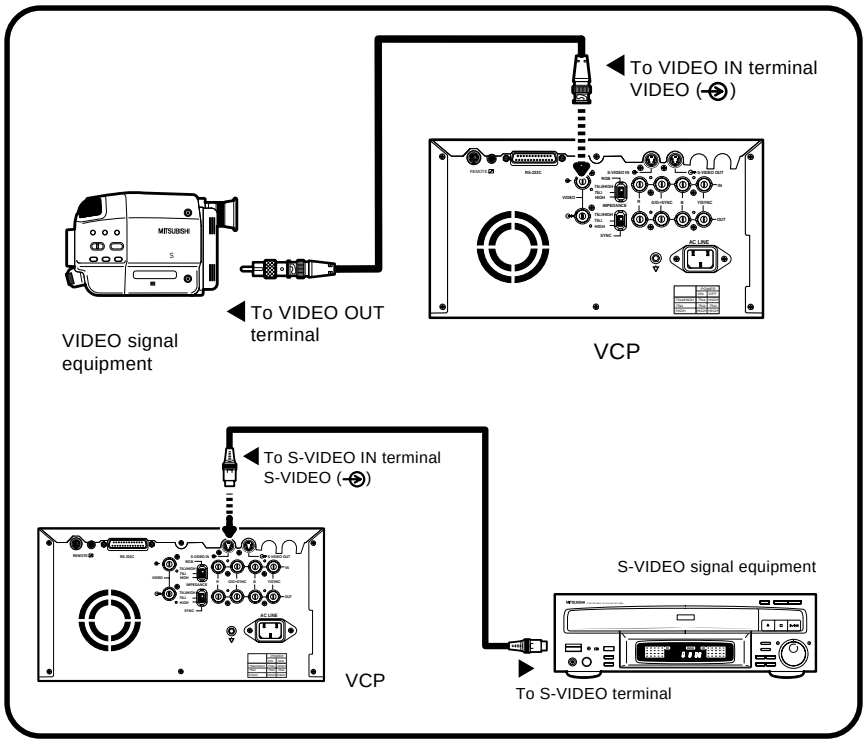
18 Press SET button.

The source image (input signal from the equipment) is displayed.

The setting of the sync. polarity and signal is completed.

CONNECTION WITH VIDEO OR S-VIDEO SIGNAL EQUIPMENT

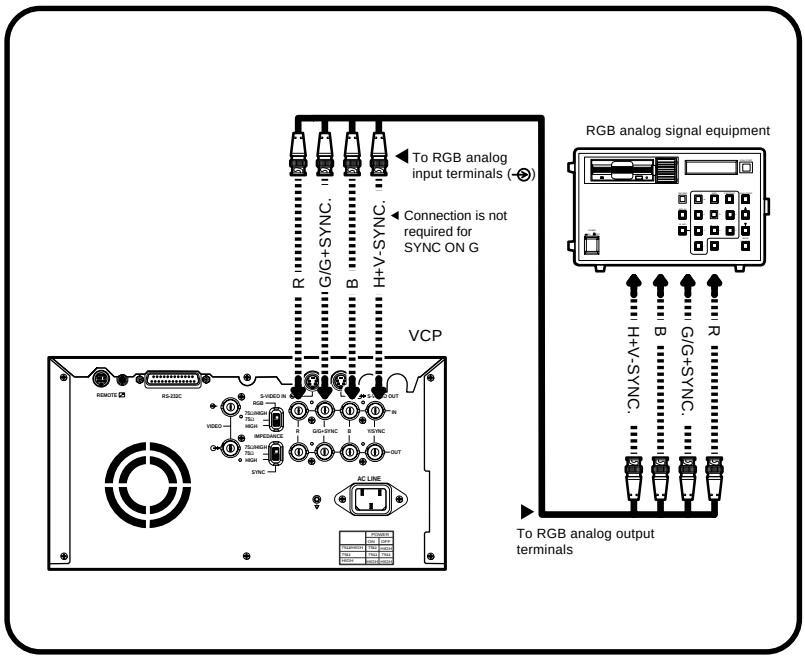
Make sure to turn off the power before setting.



CONNECTION WITH RGB ANALOG SIGNAL EQUIPMENT

Make sure to turn off the power before setting.

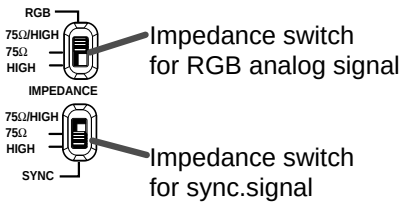
(EXAMPLE)



This unit is designed to accept RGB video at the PAL frame rate, nominally 15.75kHz horizontal and 50Hz at vertical.

1 Connect this unit and RGB analog signal equipment with a BNC cable.

2 Set the RGB IMPEDANCE switch to "75Ω/HIGH". Set the sync. signal IMPEDANCE switch to "HIGH".



IMPEDANCE SWITCH

RGB	75Ω/HIGH	Power ON: 75Ω termination
		Power OFF: No termination
	75Ω	Power ON/OFF: 75Ω termination
	HIGH	Power ON/OFF: High impedance - No termination
SYNC	75Ω/HIGH	Power ON: 75Ω termination
		Power OFF: No termination
	75Ω	Power ON/OFF: 75Ω termination
	HIGH	Power ON/OFF: High impedance - No termination

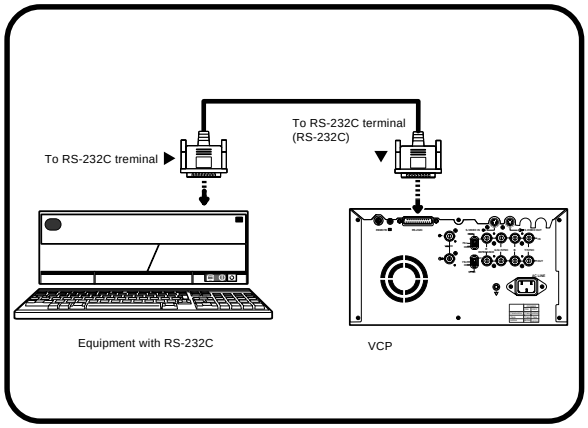
The normal settings are: RGB 75Ω/HIGH and SYNC : HIGH

When the printer is between the RGB video source and the monitor the normal settings should be used. If the 75Ω termination is not set correctly, the video will be either too dark or too bright.

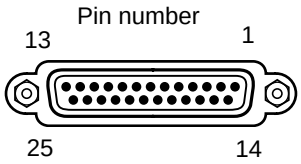
CONNECTION WITH RS-232C EQUIPMENT

This unit can controlled through a RS-232C port with custom software. (Image data can not be input.)
For the protocol, consult your dealer.

Make sure to turn off the power before setting.



■ RS-232C TERMINAL SIGNAL



Pin No.	Signal line name	Description	Directions
1	FG	Protective	---
2	TXD	Transmitted data	Output
3	RXD	Received data	Input
4	RTS	Request to send	Output
5	CTS	Clear to send	Input
6	DSR	Data set ready	Input
7	GND	Signal ground	---
20	DTR	Data terminal ready	Output

1 Connect this unit and RS-232C equipment with a crossover cable.

RS-232 Connection Cable (Cross-over cable)

(DB25) Signal	Pin No.	Pin No.	(DB25) Signal
FG	1	1	FG
TXD	2	2	TXD
RXD	3	3	RXD
RTS	4	4	RTS
CTS	5	5	CTS
DSR	6	6	DSR
DTR	20	20	DTR
GND	7	7	GND

RS-232 Connection Cable

Computer (DB9) Signal	Pin No.	Pin No.	Printer (DB25) Signal
RXD	2	2	TXD
TXD	3	3	RXD
DR	4	6	DSR
SG	5	7	GND
DR	6	20	DTR
RS	7	5	CTS
CS	8	4	RTS
FG	9	1	FG

- #9 on the 9 Pin end of the cable is typically tied to the Shield.
- This is just an example. Make sure to check the connection type for the using equipment.

2 Set the baud rate according to the equipment to be connected.

Press MENU button, then press STOP button on remote control unit.

SERVICE MENU is displayed.

S;SYSTEM [>]

3 Press ▼ button to select "RS232C."

S;RS232C [>]

4 Press ▶ button.
RS232C menu is displayed.
Set “BAUD RATE” on this menu.

S2;BAUD RATE1200

5 Press ▲ or ▼ button to select “BAUD RATE”.
The setting BAUD RATE (e.g. 1200) will be displayed.

6 Press ◀ or ▶ button to select “1200”, “2400”, “4800” or “9600” (bit/s).

7 Press ▲ or ▼ button to select “COMMAND TYPE”.

S2;COMMAND TYPEa

8 Press ◀ or ▶ button to select “a” , “b” or “c” .
Select “a” for normal setting. Depending on the connected equipment, select “b” or “c”.

9 Press SET button.
SERVICE MENU is displayed.
“SAVE” is indicated.

SER;SAVE prg.1

10 Press ◀ or ▶ button to memorize the setting in “prg.1”, “prg.2” or “prg.3.”
Select “CANCEL” to cancel the setting.

11 Press SET button.
The source image (input signal from the equipment) is displayed.

The setting of BAUD RATE and COMMAND TYPE is completed.

12 Set the communication format of the computer with a computer connected.

Synchronizing system	: Asynchronous communication
Data bit length	: 8 bits
Parity bit	: Nothing
Stop bit length	: 1
Transmission order	: Sent from LSB
Baud rate (bit/sec.)	: 1200, 2400, 4800, 9600

Before printing,

1. **Unlock the printing unit. (See below)**
2. **Install the print paper and ink cassette. (pages 17-21)**

PAPER SHEET SET

When using this unit for printing, make sure to use the following types of paper sheet and ink sheet set.

■ PAPER SHEET SET

Product name	Ink sheet size	No. of prints	Usage
CK900S	S size	200	Colour print
CK900L	L size	130	Colour print
CK900S4P	S size	130	Surface-laminated colour print
CK900L4P	L size	90	Surface-laminated colour print
CK900S4P(HX)EU	S Size	130	Surface-laminated colour print for ID photo
CK900L4P(HX)EU	L Size	90	Surface-laminated colour print for ID photo

■ THERMAL PAPER

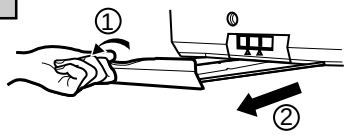
Product name	Print size	No. of prints	Usage
K65HM-CE	S/L size	S size Approx.200 L size Approx.125	Thermal print

■ PAPER INK SHEET CASSETTE

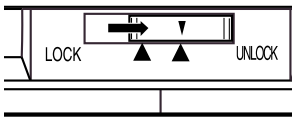
Product name	Ink sheet size	No. of prints	Usage
PKC900S	S size	200	Colour print
PKC900L	L size	130	Colour print

UNLOCK THE PRINTING UNIT

■RELEASING THE PRINTING UNIT LOCK



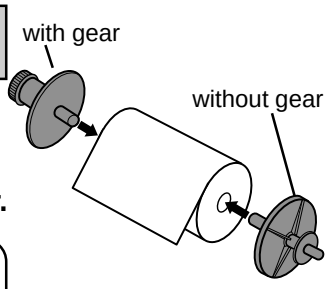
1 Press down the knob to pull out the tray.



2 Shift the printing unit lock switch to the right (UNLOCK). (See page 8.)

INSTALLATION OF PRINT PAPER

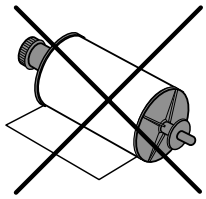
When using the thermal paper, prepare the following steps first.



1 Set the supplied paper attachments to both sides of the thermal paper.

NOTE

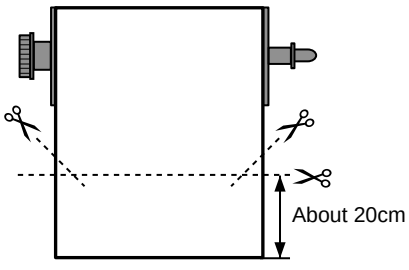
Set the attachment with gear on the left side.
Make sure to set them correctly.



2 Pull out the thermal paper about 20cm and cut it.

Remove the part with seal paste, dust and fingerprints.

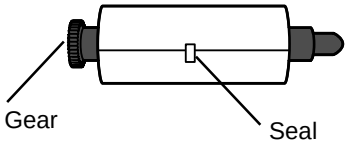
3 Cut the both corners of the paper.



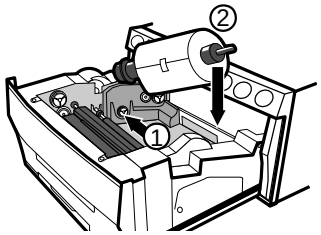
Installation for the thermal paper is completed.

■ INSTALLATION OF PRINT PAPER

Do not remove the seal on the print paper yet.
When using thermal paper, remove the seal as shown on the previous page.

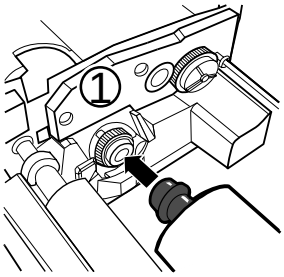


1 Insert the print paper roller with gear on the left.
Press the folder ① as shown right, and set the print paper roller.

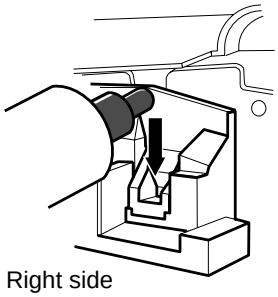


Front side

2 Set the other side of roller without gear.

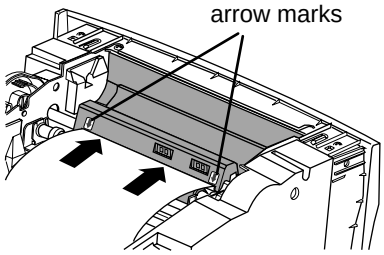


Left side

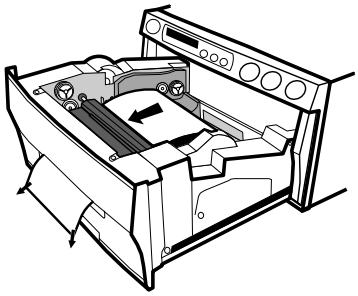


Right side

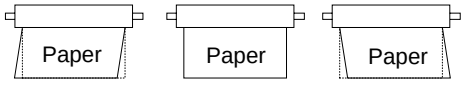
3 Remove the seal, and insert the edge of the print paper right below the roller cover with arrow marks towards the front panel.
Make sure to insert the paper straight.



4 Feed the print paper through the paper outlet with your hand.



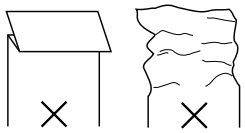
5 Pull the both side of the print paper to eliminate slack.



INCORRECT **CORRECT** **INCORRECT**

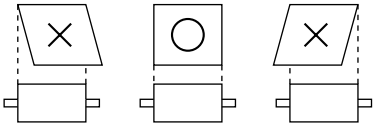
■ PRECAUTIONS ON SETTING THERMAL PAPER

When setting the thermal paper, observe the following precautions to prevent paper jam.

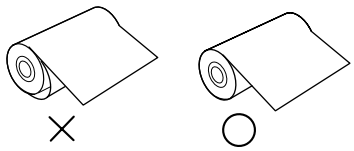


- **Do not use defective paper.**
  Do not use the bent or wrinkled paper.

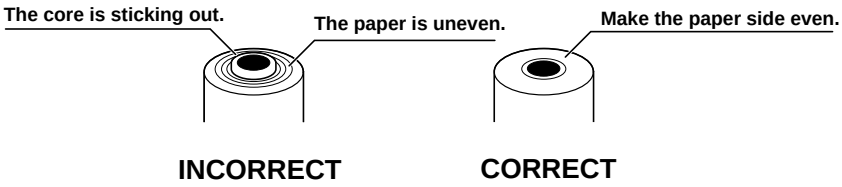
- **Adjust the paper position correctly.**
  When the paper is fed out skewed from the print exit, adjust the paper position so that it is fed out straight.



- **Do not slack the roll paper.**
  Set the paper tightly to remove any slack.



- **Make the paper side even.**
  If the side of the print paper is uneven or the core is sticking out, the amount of paper feeding after printing may vary.
  When the side of paper is uneven or the core is sticking out, install the print paper after making the paper side even.

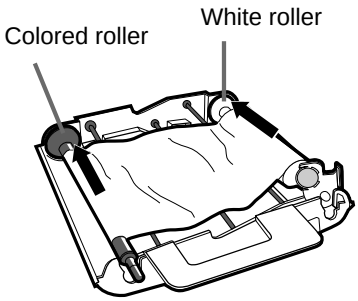


- **Other cautions**
  - Keep the high-density paper away from fingerprint, dust or moisture when storing it.
  - Do not touch the rubber roller. Do not stain or damage the roller surface.
  - Do not touch the thermal head (located inside the unit). When printing, the thermal head is heated to high temperature.
  - Do not touch the cutter blade.

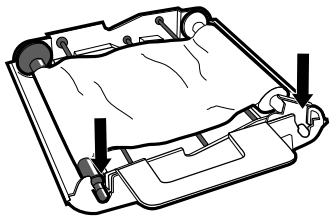
INSTALLATION OF INK SHEET

■ INSTALLING THE INK SHEET

Load the ink sheet roll to the ink cassette before inserting the ink cassette into the printer.



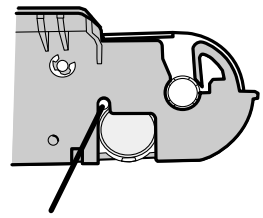
1 Put the ink sheet rollers with flat tops into the holes of ink cassette.
Put the white roller (rolled with ink sheet) to the ink cassette first.
Then, put the colored roller (without ink sheet) to the ink cassette.



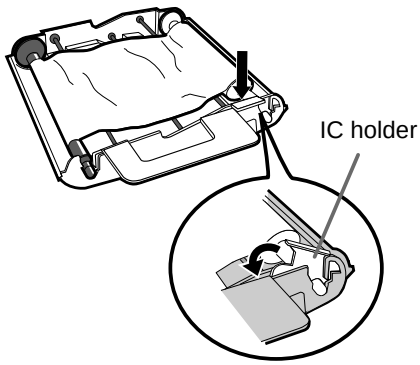
2 Put the other sides of rollers. Set IC at this time.
IC chip with the IC holder is attached to the ink sheet.
Set the IC holder to the ink cassette as shown right.

NOTE

- Do not remove the IC chip or IC holder from the ink sheet.
  Removal of the IC will stop the printer from functioning correctly.
- Set the projected part of the IC holder to the correct position as shown below.



Projected part



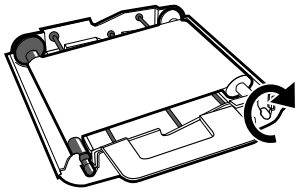
■ INSTALLING THE INK CASSETTE

1 Eliminate any slack of the ink sheet.

Hold the colored roller and turn the white roller.

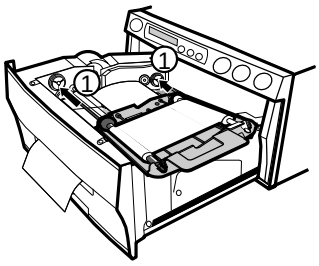
2 Insert the ink cassette with the ink sheet into its compartment.

Put the ink cassette of the ink sheet with flat top side to each ①. Then, set the other side (with handle) as shown right. When exchanging the ink cassette and so on, remove it by holding the handle. (See page 57.)



NOTE

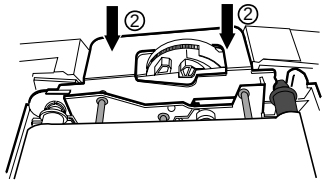
Do not install the ink cassette when printing with thermal paper, otherwise printing may be failed.



■ INSERT THE PRINTING UNIT

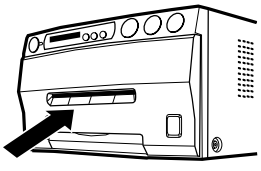
1 Push the printing unit until it is locked into place.

2 After plugging the power cord, press POWER button on the front panel.



3 After the set conditions are displayed on the monitor, press MEMORY button about 1 second with holding MONITOR button on the front panel.

The print paper is automatically cut after feeding about 10 cm (4 inches).



4 Repeat the above step 3 once or twice.

Fingerprints and dust can be removed by feeding the print paper. The printing unit is initialized.

NOTE

- Make sure to press MONITOR button first for operating 3 and 4.
  Pressing MEMORY button first operates to memorize the images. When exchanging the printing paper or ink cassette during using the unit, the recorded images may be erased by pressing MEMORY button first.
- Do not feed the print paper more than 2 times. Doing so will not allow the number of prints indicated on page 17 to be printed.
- When thermal paper is running out, red lines appear on both sides of the paper. Install a new roll of paper, otherwise printing may be failed.

The installation of print paper and ink cassette is completed.

NOTE

An IC is built in the ink sheet. This is the IC chip, not a battery.
This IC can be thrown away as normal waste.

NOTE

If the power is turned on and AUTO FEED&CUT on SYSTEM SETUP menu is set to ON, “SET PAPER” on the monitor and LCD disappear when print paper is inserted under the roller. (For AUTO FEED&CUT setting, refer to page 46.) After inserting ink sheet and closing the printing mechanism, the print paper is automatically fed and cut twice.

NOTE

Take the print paper one by one after completing printing. Pull out the tray completely when using it. If you fail to do so, paper jamming may occur.
Put the tray back when finishing printing.

USAGE AND KEEPING OF PAPER SHEET SET

BEFORE PRINTING

- Fingerprints or dust on the paper’s surface may degrade print quality and cause paper jams. Immediately after the paper is replaced, 2 images may be printed with a blank part due to hand’s dust or oil. Refer to Pages 17 - 18.
- When print paper is rapidly transferred from a cool place to a hot place, vapor or dew will be generated on the paper’s surface causing paper jams or degraded print quality. Leave the print paper in the room to stabilize its temperature before using it.
- When print paper and ink sheet run out during printing, the printing operation stops and the error messages such as “CHANGE PAPER” and “CHANGE INK” lamp on the monitor and LCD display are lit. Set new ink sheet or print paper. Refer to Pages 17-20.

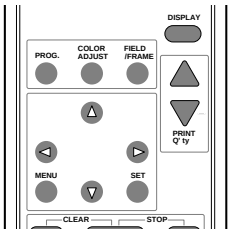
AFTER PRINTING

- When the printed paper is touched by a wet hand, the print may be discolored.
- Fading may occur if the print-face is exposed to organic chemical agents which may affect print paper (e.g. alcohol, ester, ketone based).
- Fading will be accelerated upon contact with PVC-based materials (e.g. adhesive tapes, rubber erasers, etc.).
- Avoid storing prints in direct sunlight or places with high humidity.

STORAGE

- Leaving the print paper in contact with PVC-based materials causes color of print paper to come off and to be stained.
- Never store print paper in places that are close to heater, hot humid or dusty.
  Keep print paper in a place where;
  Temperature : 5°C - 30 °C (41°F - 86°F)
  Humidity : 20 - 60%RH

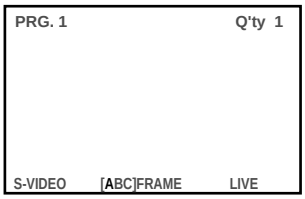
BEFORE PRINTING



■ SELECTING FIELD/FRAME

Press FIELD/FRAME button on the remote control unit to select "FIELD" or "FRAME".

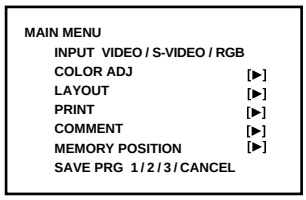
- Select "FRAME" for a high resolution still image printing.
  Select "FIELD" for a picture of quickly moving objects.
- When "FIELD" is selected, the print image will be lower in resolution.
  The selected mode is displayed on the monitor screen and LCD of this unit.
- A video picture is normally composed of two slightly lower resolution images (FIELD images) to form a single image (FRAME image).



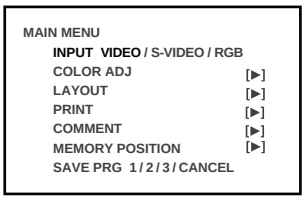
■ SELECTING INPUT SIGNAL

- Select VIDEO, S-VIDEO or RGB according to the input signal.
- The appropriate input signal may already be selected through the RS-232C control software.
- The input signal can be set on the menu displayed on the monitor screen and LCD.
- Unless the input signal is changed, it is not necessary to select the input signal every time.

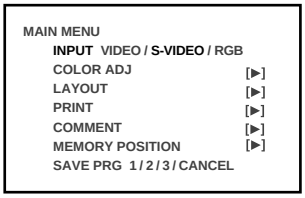
1 Press MENU button.
MAIN MENU is displayed.



2 Press ▲, ▼ button to select "INPUT".

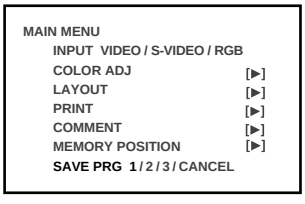


3 Press ◀, ▶ button to select "VIDEO", "S-VIDEO", or "RGB".



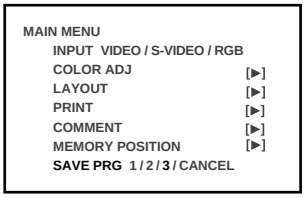
4 Press SET button.

- "SAVE PRG 1/2/3/CANCEL" is selected.
- This menu let you select a program memory (1-3) to store your new settings.



5 Press ◀, ▶ button to select one of the program number (1-3) to memorize the setting.

The program is replaced. In case of keeping the stored program, do not select the program number in which the setting is stored.



6 Press SET button.

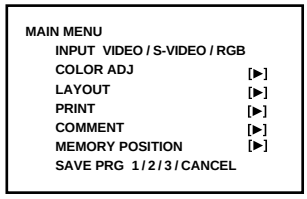
The source image is displayed.

The selecting of input signal is completed.

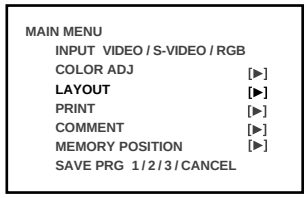
■ SELECTING PRINT SIZE

- "AUTO" is selected for initial setting. "S" is selected when THERMAL is set to "ON".
- Select "AUTO" or "S" according to the print size.
  AUTO : Selects print size automatically according to the installed ink sheet.
  S : Selects S size regardless of the installed ink sheet.
  When selecting THERMAL:ON,
  L : Prints with L size.
  S : Prints with S size.
- The print size can be set on the menu displayed on the monitor screen and LCD.
- Unless the ink sheet size is changed, it is not necessary to select the print size every time.

1 Press MENU button and MAIN MENU is displayed.

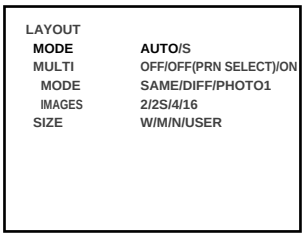


2 Press ▲, ▼ button to select "LAYOUT".



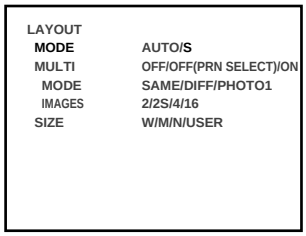
3 Press ▶ button.

- LAYOUT is displayed.
- Normally, "MODE" is selected when opening LAYOUT. When other item is selected, press ▲ or ▼ button to select "MODE".



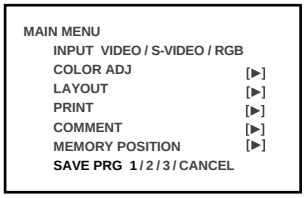
4 Press ◀, ▶ button to select "AUTO" or "S". (Select "L" or "S" when THERMAL is set to ON.)

- Select "AUTO" for normal setting. Select "S" to print S size with L size ink sheet.
- When printing with thermal paper, L or S size printing is available by selecting "L" or "S".



5 Press SET button.

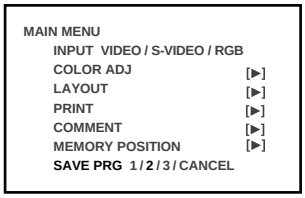
- MAIN MENU is displayed.
- “SAVE PRG 1/2/3/CANCEL” is selected.
- This menu lets you select a program memory (1-3) to store your new settings.



6 Press ◀, ▶ button to select one of the program memory (1-3) to memorize the setting.

The program is replaced. In case of keeping the stored program, do not select the memory number in which the setting is stored.

When “CANCEL” is selected, the settings are not memorized.



7 Press SET button.

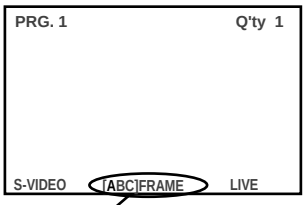
The source image is displayed.

The print size setting is completed.

MEMORY PRINT

In the single image mode, this unit has 3 FRAMES of image memory and the following functions are available.

- Each time the FIELD/FRAME button is pressed, the display changes to show the Field or Frame mode.
- Frames are shown as [ABC]FRAME, and since one Frame consists of two Fields, the Frame letter is shown (in green) along with the Field display as “1” or “2” (in green) as [ABC]FIELD1/[ABC]FIELD2.
- Press MEMORY PAGE button to advance the Memory Page to the next Field or Frame. The selected page number is shown in green. The memory page in which the next image will be memorized is shown in yellow. If the selected page number and the next memory page are the same, the number will be shown in yellow.
- The image will be stored in the selected memory page when MEMORY button is pressed.
- When pressing MONITOR button, the image of memory page which is currently selected is displayed on the monitor.
  When displaying a memory image, “MEMORY” is shown on the monitor. When displaying the image from the connected equipment, “LIVE” is shown. When pressing MEMORY PAGE button, the selected memory page is displayed.
- An image can be stored into memory while printing, but not in the memory currently being printed.



Available memory page (A is chosen).
[ABC]FIELD1/[ABC]FIELD2 is displayed for FIELD.
[ABC]FRAME is displayed for FRAME.

■ MEMORIZING AND PRINTING AN IMAGE

1 Display the image which you wish to print.

- The memory page can be changed by pressing MEMORY PAGE button on the remote control unit.

2 Press MEMORY button.

- The selected page is shown in yellow.
- When pressing MONITOR button to show “MEMORY” on monitor display, the image on the selected memory page will be displayed on monitor.

3 Press PRINT button.

- The image displayed on the monitor will be printed.
- The memory page which is print stand-by is shown as “_”, and it goes on and off during printing.

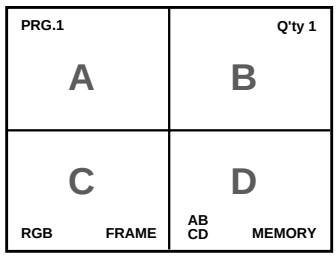
NOTE

When selecting OFF(PRN SELECT) in MULTI, 4 memory pages are displayed on the monitor.
However, only selecting page can be printed.

■ IMAGE MEMORIZING WITH PAGE INCREMENT SET TO PAGE

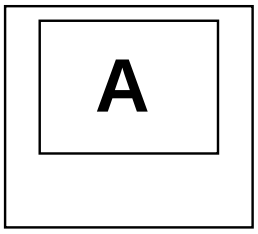
When INCREMENT is set to “PAGE” (automatic memory page advance system), the followings are the memory operations.

- Every time pressing MEMORY button, the memory page is switched in order of A→B→C, and image will be memorized in it.
- To memorize an image on a memory page you selected, press MEMORY PAGE button first to select the memory page. Then, press MEMORY button to memorize the image.
- When selecting OFF(PRN SELECT) in MULTI, the memory page is switched in order of A→B→C→ D→A→B... by pressing MEMORY button.
  For FIELD, the memory page is switched in order of A1→B1→C1→D1→A2→B2→ C2→D2→A1→B1....by pressing MEMORY button.



Memory page display

Selecting A and printing it.

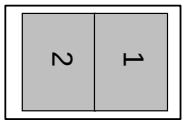
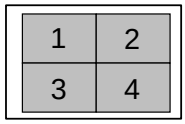
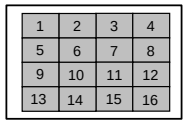


(example) S size printing

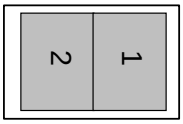
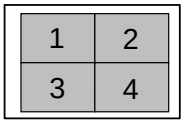
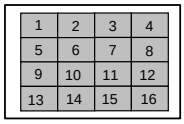
■ NUMBER OF MEMORY PAGES

As this unit has 1280 pixel x 600 lines x 3 frames of memory, the following memory operations are available.

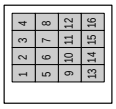
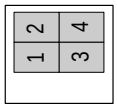
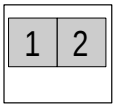
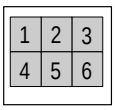
MODE : DIFF
(Multi printing the different images)

MULTI	FRAME	FIELD	PRINT EXAMPLE
2 2S	1 page	2 pages	
4	1 page	2 pages	
16		2 pages	

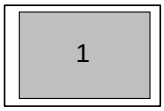
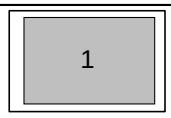
MODE : SAME
(Multi printing the same images)

MULTI	FRAME	FIELD	PRINT EXAMPLE
2 2S	3 pages	6 pages	
4	3 pages	6 pages	
16	3 pages	6 pages	

MODE : PHOTO1

MULTI	FRAME	FIELD	PRINT EXAMPLE (S size print)
CARD	3 pages	6 pages	
3 x 4	3 pages	6 pages	
5 x 5	3 pages	6 pages	
3x3.5	3 pages	6 pages	

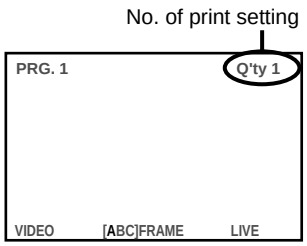
MULTI : OFF

MULTI	FRAME	FIELD	PRINT EXAMPLE
OFF	3 pages	6 pages	
OFF (PRN SELECT)	4 pages	8 pages	

- Because the FIELD mode has half the vertical resolution of the FRAME mode, the printed image may be low in quality.

■ MULTIPLE COPY OR CONTINUOUS PRINTING

Multiple copies of a memorized image can be made by setting the number of prints to more than one. The print quantity can be set for up to 200 prints or for continuous printing until the paper or ink sheet is used up. Multiple quantity printing can be cancelled if needed.



1 Press PRINT Q'ty ▲,▼ button to set the number of sheets to be printed.

- The number of prints is displayed on the monitor screen.
- The number will increase by pressing PRINT Q'ty ▲ and decrease by pressing PRINT Q'ty ▼.
- The number switches in the order of;
  1←→2←• • •→ 9 ←→ 10 ←→ 20 ←→ 30 ←→ 40 ←→ 50 ←→ 100 ←→ 200 ←→ C ←→ 1
  When you set to "C", continuous printing will be done until the paper or ink sheet is used up.

2 Press PRINT button.

- The number of prints you set is printed.
- During continuous printing (except for selecting "C"), the set number on the monitor or LCD will be counted down every time one sheet is printed. When printing is completed, the counter will be reset to the original set number. This will not reset when turning off the power (It will not be reset to "1".)
- If you wish to stop printing;
  - Press PRINT Q'ty ▲ and ▼ buttons. After printing the current page, the counter will be reset to "1." Pressing PRINT Q'ty ▲ and ▼ buttons are also available to cancel the reserved printing.
  - If you wish to stop printing without completing the current page, press STOP button. The image will be printed imcompletely and come out from the print outlet.

NOTE

If a blackish image is continuously printed, the internal temperature may rise and cause the unit to switch to a stand-by condition during printing. In this case, an error message "OVER HEAT" will be displayed on the monitor and LCD. Wait until the error message goes off. When temperature drops and the message goes off, printing resumes.

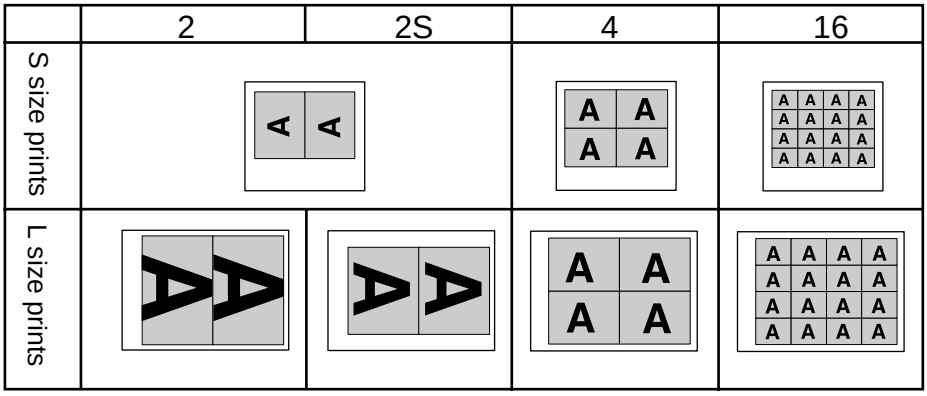
PRINTING (SPECIAL)

Various types of printing are available by setting on the menu screen (MAIN MENU and SERVICE MENU).
In this section, some examples of special prints are given.
For each setting, see pages 34-37.

MULTI PRINT

MULTI PRINT is the function which 2, 4 or 16 images can be printed on a sheet.
Use LAYOUT of MAIN MENU for setting. For the setting, refer to page 40-41. For PHOTO1 setting, refer to “Photo print” on page 30.

MODE: SAME, DIFF



- MODE : DIFF
  When setting IMAGES to “2 (2S),” 2 images are available to be stored in each FRAME: Page A, or each FIELD1,2: Page A.
- MODE :DIFF
  When setting IMAGES to “4,” 4 images are available to be stored each FRAME: Page A, or each FIELD1,2 :Page A.
- MODE :DIFF
  When setting IMAGES to “16,” memory is not available in FRAME: Page A. 16 images are available to be stored in FIELD:Page A.
- MODE : SAME
  1 image is available to be stored in each FRAME: Page A-C or in each FIELD1,2: A-C.

NOTE

- When printing 2 images on S size sheet, some characters of the comment will be clipped.
- When printing 2 images on L size sheet, the images may be partially clipped. In this case, adjust the image position by “PRN V AREA” of LAYOUT2 in SERVICE MENU so that the image moves to the proper position, or use 2S mode. See page 41,48.

■ WHEN SETTING TO MODE : DIFF, IMAGES :4;

Repeat the following procedure to store the set number of images in memory.

1 Press DISPLAY button to display the set condition.

2 Press MONITOR button and select the source image (“LIVE” is displayed on the monitor.) to display the image to be stored.

3 Press MEMORY button to store the image to be printed.

- For normal setting, when the image is stored, the source image (LIVE image) is displayed after displaying the stored image about 1 second.

4 When selecting the position to store the image, press MEMORY PAGE button to select the memory page.

- Press ▲, ▼, ◀, ▶ button to determine the position to store the image.
- The image is stored in the selected memory page.
- The position number where the image can be stored is indicated in yellow.

■ WHEN SETTING TO MODE : SAME, IMAGES : 4;

Only one image will be displayed on the monitor screen.

1 Press DISPLAY button to display the set condition.

2 Press MONITOR button and select the source image (“LIVE” is displayed on the monitor.) to display the image to be stored.

3 Press MEMORY button to store the image to be printed.

- When the image is stored, the source image (LIVE image) is displayed after displaying the stored image about 1 second. (When MEM&MONI:OFF in SERVICE MENU)

4 When selecting the memorizing page (A, B, C), press MEMORY PAGE button to select .

- The position number where the image can be stored is indicated in yellow.

SEPARATE PRINT

- The SEPARATE print is a function to insert a white frame between 2 or more images.
- Use LAYOUT2 of SERVICE MENU for setting. See page 48.

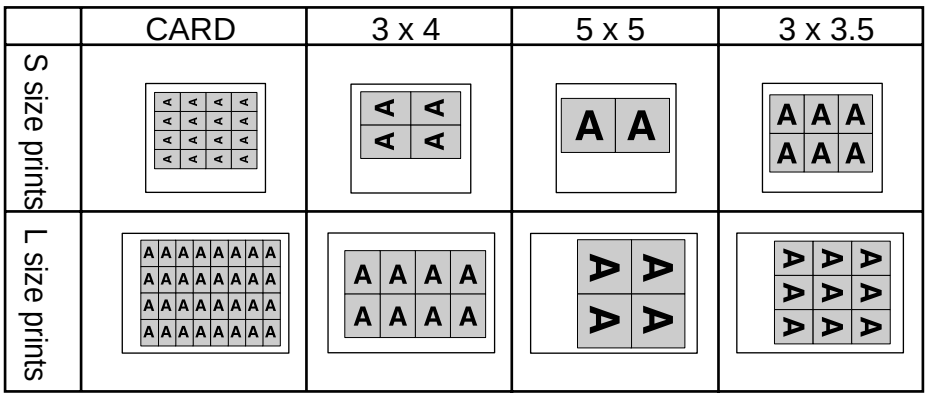
NOTE

The amount of white frame in multi print is different between on the monitor and the printed image.
The image size changes according to “SIZE” of LAYOUT menu.
The setting just before printing applies to all the multi print images.

PHOTO PRINTS

- PHOTO print is a function to print the images on the photo size (3 x 4 cm, 5 x 5 cm, 3 x 3.5cm) and CARD (2 x 1.5cm) size.
- CARD size print is suited to stick on a business card.
- Use LAYOUT of MAIN MENU for setting. Refer to page 46 for setting.
- The following prints are available.

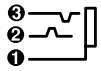
MODE: PHOTO1



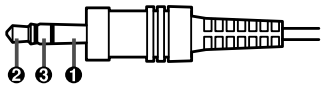
EXTERNAL REMOTE TERMINAL 1

The image can be stored in memory by sending the remote signal through the external remote terminal on the rear panel. When the MEM&PRN(MEMORY & PRINT) function is set to ON, the image will be printed after being stored in memory.

- Make out the necessary circuit to use this function by referring to the following.



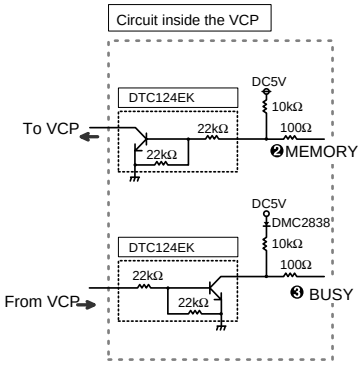
Circuit inside and pin No.



Plug pin No.

EXTERNAL REMOTE TERMINAL SIGNAL ALLOCATION (STEREO JACK)

Pin No.	Function	Description
❶	Ground	Earth
❷	MEMORY	Memory : When the signal becomes “LOW” from “HIGH”, the image is stored in memory. (When the signal has been “LOW” for 15ms or more, the image is stored in memory. See page 51, 52.)
❸	BUSY1	Refer to the BUSY LEVEL setting of REMOTE SET in SERVICE MENU. See page 52.



- When the signal from BUSY terminal is received with TTL level, keep the following.
  $|I_{OL}| = 2mA$ or less, $|I_{OH}| = 1mA$ or less
  $|I_{OL}|$ means the current flowing into the unit at Low output, $|I_{OH}|$ means the current flowing out of the unit at High output.
- Just after completing printing, there is a period that memory signal is not accepted.

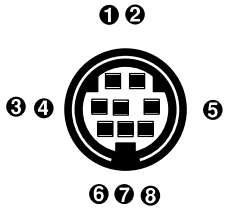
EXTERNAL REMOTE TERMINAL 2

The image can be stored in memory and printed by sending the remote signal through the external remote terminal on the rear panel.

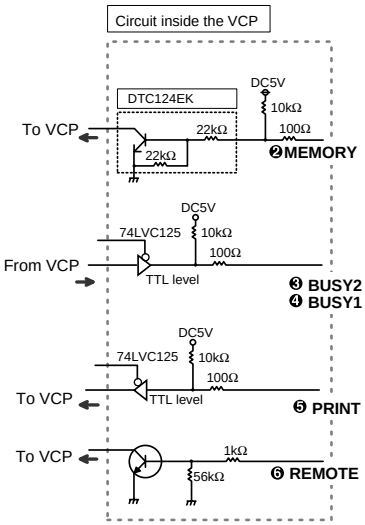
- Make out the necessary circuit to use this function by referring to the following.

EXTERNAL REMOTE TERMINAL SIGNAL ALLOCATION (MINI DIN8PIN)

Pin No.	Function	Description
❶	Ground	Earth
❷	MEMORY	Memory : When the signal becomes “LOW” from “HIGH”, the image is stored in memory. (When the signal has been “LOW” for 15ms or more, the image is stored in memory. See page 51, 52.)
❸	BUSY2	Refer to the BUSY LEVEL setting of REMOTE SET in SERVICE MENU. See page 52.
❹	BUSY1	Refer to the BUSY LEVEL setting of REMOTE SET in SERVICE MENU. See page 52.
❺	PRINT	When the signal becomes “LOW” from “HIGH”, the image is stored in memory. (When the signal has been “LOW” for 15ms or more, the image is stored in memory.)
❻	REMOTE	The same functions as the supplied remote control can be controlled.
❼	Unused	
❽	DC3V	Power supply for the remote control DC 1mA Max.



Pin No.

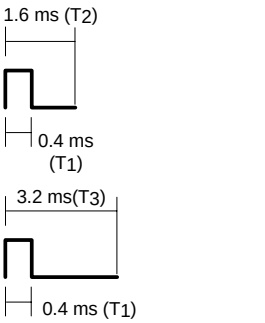


- When the signal from BUSY terminal is received with TTL level, keep the following.
  $|I_{OL}|$ = 2mA or less, $|I_{OH}|$ = 1mA or less
  $|I_{OL}|$ means the current flowing into the unit at Low output, $|I_{OH}|$ means the current flowing out of the unit at High output.
- Just after completing printing, there is a period that memory signal is not accepted.

■ PIN NO. ❻ REMOTE TERMINAL

By sending the following remote control codes from pin No.6, the same functions as the wired remote control unit supplied can be controlled.

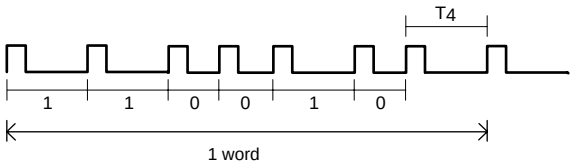
01: ◀ button 02: ▶ button 03: ▼ button 04: ▲ button
08: PRINT Q'ty ▲ button 09*
0A*: MENU button 0B*: CLEAR button 0C: PRINT Q'ty ▼ button
0D* 0E*: SET button 0F*: STOP button
12*: PROGRAM button 13*: PRINT button 15*: FIELD/FRAME button
16*: COLOR ADJ button 17*: MEMORY button 18*: DISPLAY button
1C*: MEMORY PAGE button 1D*: MONITOR button
In case of the codes with * mark, 5 words are sent.



(The above values are references.)

■ TIMING CHART

Input signal level : TTL
Input timing : 1 word 38.4 ms (Reference)
$T_1 \geqq 0.4$ ms
1.5 ms < T_2 < 2 ms
2 ms < T_3 < 4.2 ms
13 ms < T_4 < 90 ms

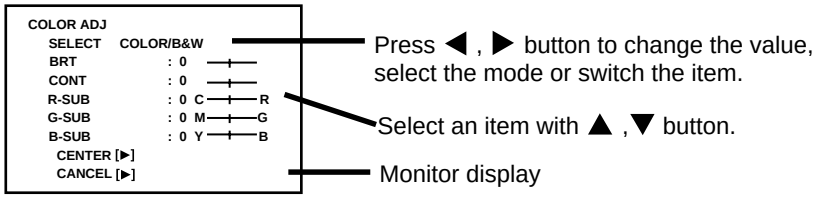


(EXAMPLE) Print code
= 13 = 0 1 0 0 1 1

SETTING THE FUNCTIONS (MENU CHART)

MONITOR DISPLAY CHART

OPERATION


COLOR ADJ
SELECT COLOR/B&W
BRT : 0
CONT : 0
R-SUB : 0 C R
G-SUB : 0 M G
B-SUB : 0 Y B
CENTER [▶]
CANCEL [▶]
Press ◀ , ▶ button to change the value, select the mode or switch the item.
Select an item with ▲ , ▼ button.
Monitor display

p is reference page.

is the name of button on remote control unit.

is the name of button on front panel.

***1** When going back to MAIN MENU or SERVICE MENU without saving the setting, press MENU button.

Front panel

POWER

ON

Set conditions display

PRG. 1 Q'ty 1

A

VIDEO [ABC]FRAME LIVE

S-VIDEO [ABC]FIELD12 MEMORY

RGB

DISPLAY

Source Image

A

DISPLAY

MENU

SET

COLOR ADJ

STOP

p38 MAIN MENU display

MAIN MENU
INPUT VIDEO/S-VIDEO/RGB
COLOR ADJ [▶]
LAYOUT [▶]
PRINT [▶]
COMMENT [▶]
MEMORY POSITION [▶]
SAVE PRG 1/2/3/CANCEL

MENU *1

SET

p40 Colour adjustment display

COLOR ADJ
SELECT COLOR/B&W
BRT : 0
CONT : 0
R-SUB : 0 C R
G-SUB : 0 M G
B-SUB : 0 Y B
CENTER [▶]
CANCEL [▶]

Changes to Y-SUB, M-SUB, C-SUB when selecting SELECT :B&W

p40 Layout setting display

LAYOUT
MODE AUTO/S
MULTI OFF/OFF(PRN SELECT)/ON
MODE SAME/DIFF/PHOTO1
IMAGES 2/2S/4/16
SIZE W/M/N/USER
<COPY OFF/W/M/N>
<TOP 0 (0~ -48)>
<BOTTOM 0 (0~ -48)>
<LEFT 0 (0~ -63)>
<RIGHT 0 (0~ -63)>

L/S is displayed when selecting THERMAL : ON

Displays only when MULTI:ON *2

2S is not displayed when selecting THERMAL : ON

Displays only when SIZE:USER

p42 Print setting display

PRINT
GRAD ES/ECHO/NOR
APT S/N/H1/H2
DIR NOR/REV
MIRROR OFF/ON
PRN SPEED FAST/NORMAL

Only NOR is available when using CK900S4P, CK900L4P, CK900S4P(HX)EU or CK900L4P(HX)EU, or selecting THERMAL : ON

Only NORMAL is available when selecting IMAGES:2S or using CK900S4P(HX)EU or CK900L4P(HX)EU. Only FAST is available when selecting THERMAL : ON

p43 Comment making display

COMMENT OFF/ON[SET]/ADJ/DATA

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789
+-*/.,:;'"?! ( ) < >#%& $ ¥
[LEFT][RIGHT] SET
[INS][DEL] SET
[CANCEL] SET
[SAVE] SET->MAIN MENU

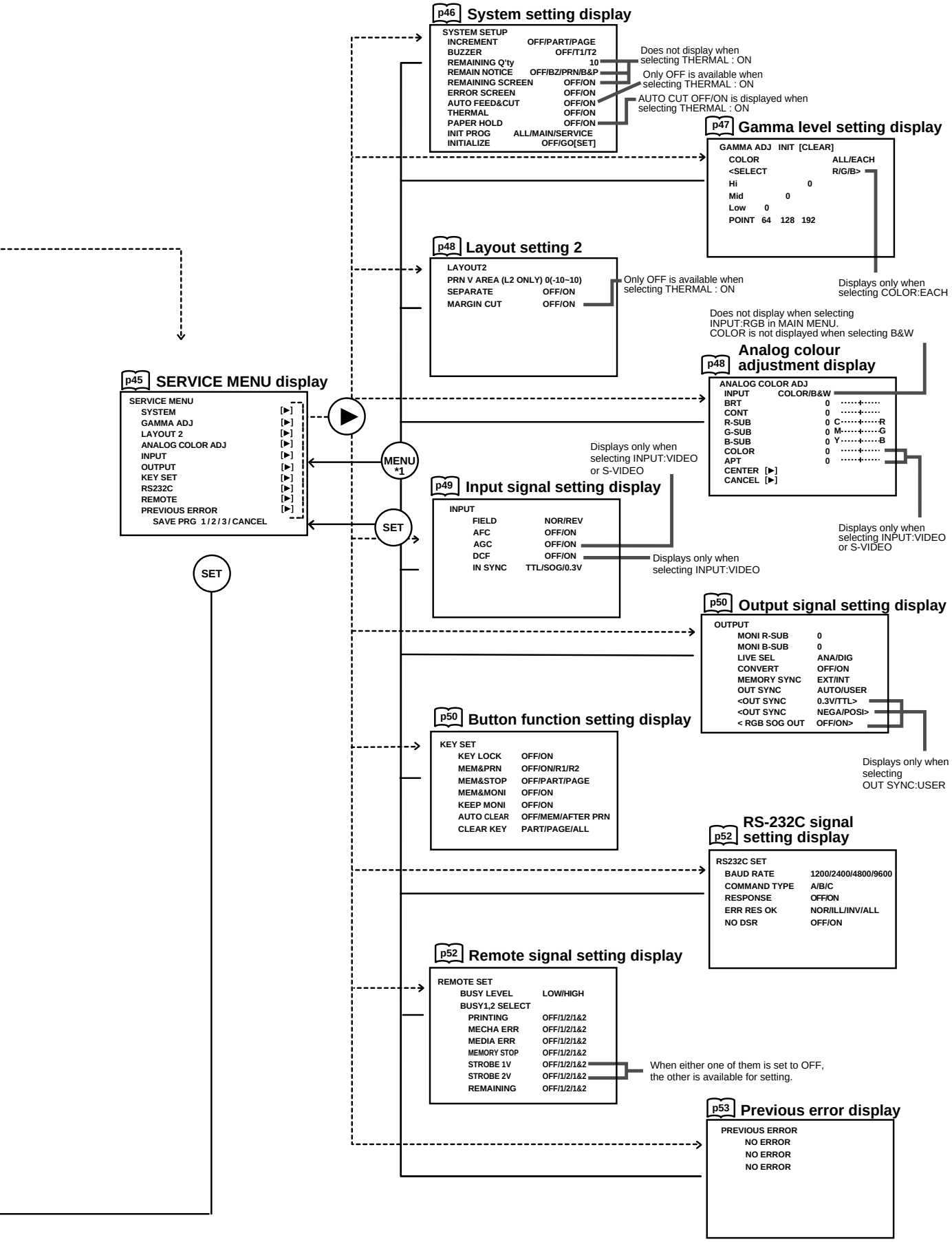
Memory and Position setting display

p44

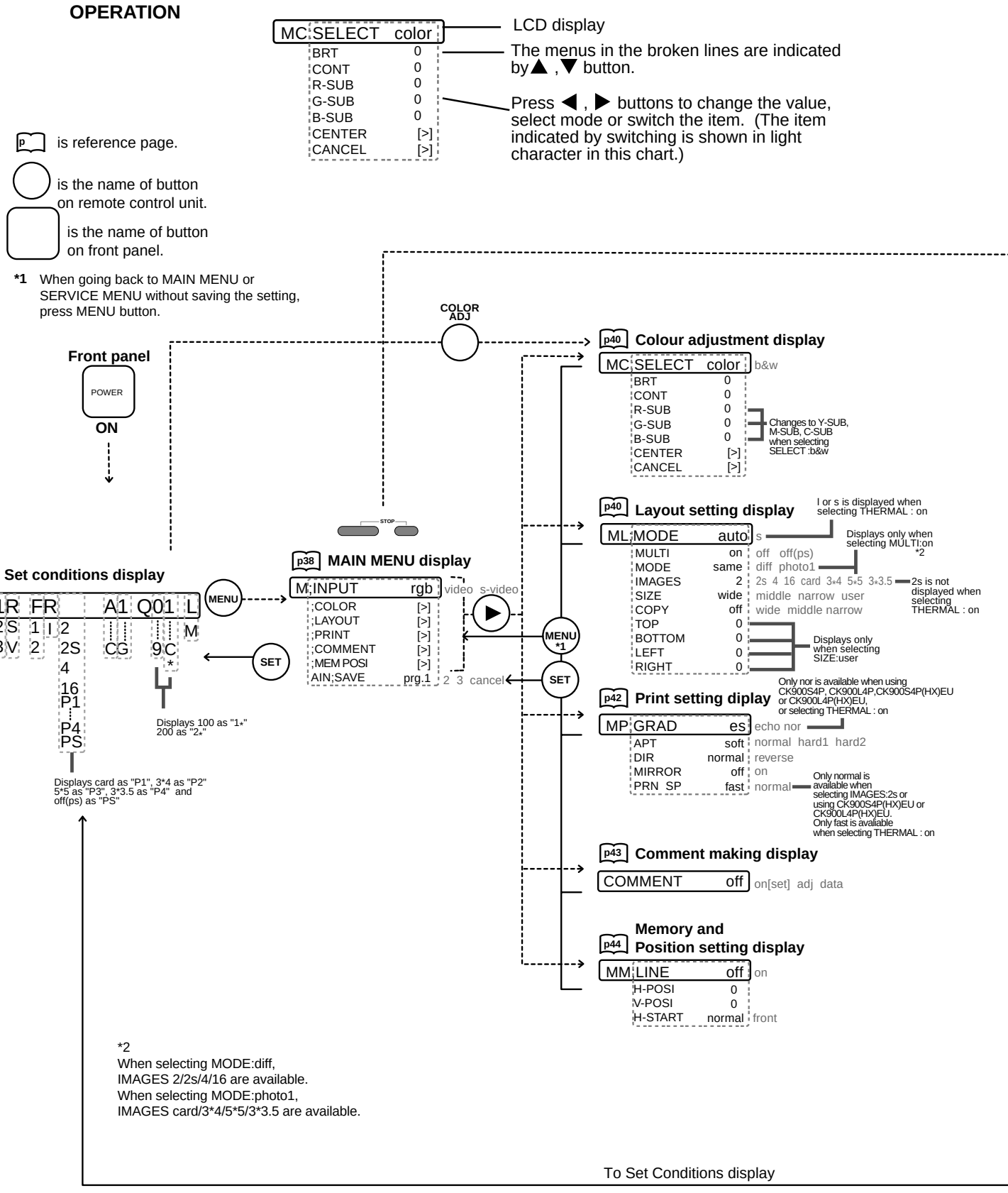
MEMORY POSITION
LINE OFF/ON
H-POSI 0
V-POSI 0
H-START NOR/FRONT

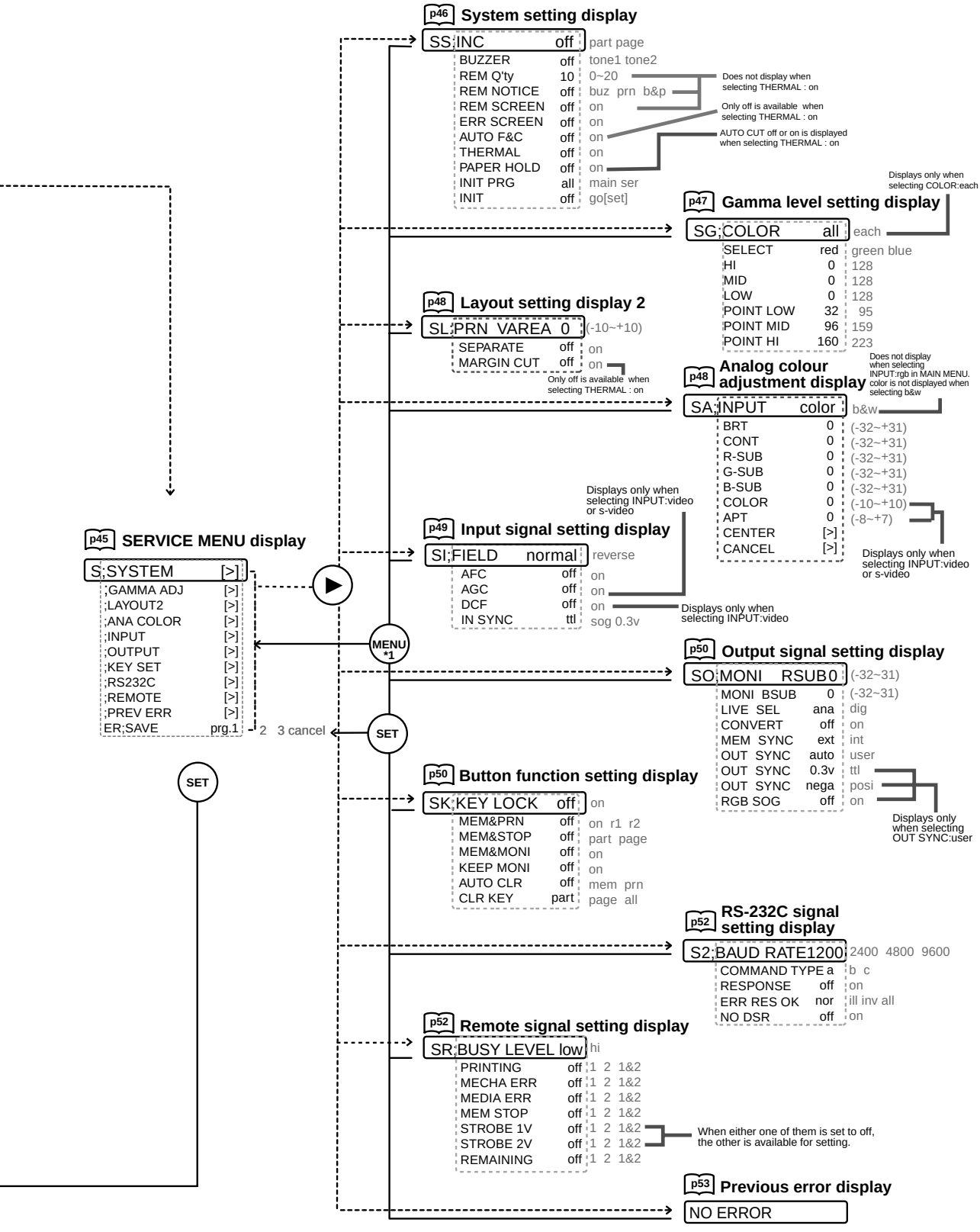
*2
When selecting MODE:DIFF,
IMAGES 2/2S/4/16 are available.
When selecting MODE:PHOTO1,
IMAGES CARD/3*4/5*5/3*3.5 are available.

To Set Conditions display


p46 System setting display
SYSTEM SETUP
INCREMENT OFF/PART/PAGE
BUZZER OFF/T1/T2
REMAINING Q'ty 10
REMAIN NOTICE OFF/BZ/PRN/B&P
REMAINING SCREEN OFF/ON
ERROR SCREEN OFF/ON
AUTO FEED&CUT OFF/ON
THERMAL OFF/ON
PAPER HOLD OFF/ON
INIT PROG ALL/MAIN/SERVICE
INITIALIZE OFF/GO[SET]
Does not display when selecting THERMAL : ON
Only OFF is available when selecting THERMAL : ON
AUTO CUT OFF/ON is displayed when selecting THERMAL : ON
p47 Gamma level setting display
GAMMA ADJ INIT [CLEAR]
COLOR ALL/EACH
<SELECT R/G/B>
Hi 0
Mid 0
Low 0
POINT 64 128 192
Displays only when selecting COLOR:EACH
p48 Layout setting 2
LAYOUT2
PRN V AREA (L2 ONLY) 0(-10~10)
SEPARATE OFF/ON
MARGIN CUT OFF/ON
Only OFF is available when selecting THERMAL : ON
Does not display when selecting INPUT:RGB in MAIN MENU.
COLOR is not displayed when selecting B&W
p48 Analog colour adjustment display
ANALOG COLOR ADJ
INPUT COLOR/B&W
BRT 0
CONT 0
R-SUB 0 C R
G-SUB 0 M G
B-SUB 0 Y B
COLOR 0
APT 0
CENTER [▶]
CANCEL [▶]
Displays only when selecting INPUT:VIDEO or S-VIDEO
p45 SERVICE MENU display
SERVICE MENU
SYSTEM [▶]
GAMMA ADJ [▶]
LAYOUT 2 [▶]
ANALOG COLOR ADJ [▶]
INPUT [▶]
OUTPUT [▶]
KEY SET [▶]
RS232C [▶]
REMOTE [▶]
PREVIOUS ERROR [▶]
SAVE PRG 1 / 2 / 3 / CANCEL
MENU *1
SET
SET
p49 Input signal setting display
INPUT
FIELD NOR/REV
AFC OFF/ON
AGC OFF/ON
DCF OFF/ON
IN SYNC TTL/SOG/0.3V
Displays only when selecting INPUT:VIDEO
p50 Output signal setting display
OUTPUT
MONI R-SUB 0
MONI B-SUB 0
LIVE SEL ANA/DIG
CONVERT OFF/ON
MEMORY SYNC EXT/INT
OUT SYNC AUTO/USER
<OUT SYNC 0.3V/TTL>
<OUT SYNC NEGA/POSI>
< RGB SOG OUT OFF/ON>
Displays only when selecting OUT SYNC:USER
p50 Button function setting display
KEY SET
KEY LOCK OFF/ON
MEM&PRN OFF/ON/R1/R2
MEM&STOP OFF/PART/PAGE
MEM&MONI OFF/ON
KEEP MONI OFF/ON
AUTO CLEAR OFF/MEM/AFTER PRN
CLEAR KEY PART/PAGE/ALL
p52 RS-232C signal setting display
RS232C SET
BAUD RATE 1200/2400/4800/9600
COMMAND TYPE A/B/C
RESPONSE OFF/ON
ERR RES OK NOR/ILL/INV/ALL
NO DSR OFF/ON
p52 Remote signal setting display
REMOTE SET
BUSY LEVEL LOW/HIGH
BUSY1,2 SELECT
PRINTING OFF/1/2/1&2
MECHA ERR OFF/1/2/1&2
MEDIA ERR OFF/1/2/1&2
MEMORY STOP OFF/1/2/1&2
STROBE 1V OFF/1/2/1&2
STROBE 2V OFF/1/2/1&2
REMAINING OFF/1/2/1&2
When either one of them is set to OFF, the other is available for setting.
p53 Previous error display
PREVIOUS ERROR
NO ERROR
NO ERROR
NO ERROR

LCD DISPLAY CHART

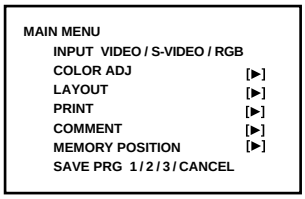

OPERATION
MC SELECT color
BRT 0
CONT 0
R-SUB 0
G-SUB 0
B-SUB 0
CENTER [>]
CANCEL [>]
LCD display
The menus in the broken lines are indicated by▲ ,▼ button.
Press ◀ , ▶ buttons to change the value, select mode or switch the item. (The item indicated by switching is shown in light character in this chart.)
p is reference page.
is the name of button on remote control unit.
is the name of button on front panel.
*1 When going back to MAIN MENU or SERVICE MENU without saving the setting, press MENU button.
Front panel
POWER
ON
COLOR ADJ
STOP
Set conditions display
P1R FR A1 Q01 L
2S 1 I 2 CG 9C M
3V 2 2S
4
16
P1
P4
PS
MENU
SET
Displays 100 as "1*" 200 as "2*"
Displays card as "P1", 3*4 as "P2" 5*5 as "P3", 3*3.5 as "P4" and off(ps) as "PS"
p38 MAIN MENU display
M INPUT rgb
COLOR [>]
LAYOUT [>]
PRINT [>]
COMMENT [>]
MEM POSI [>]
AIN SAVE prg.1
video s-video
2 3 cancel
MENU *1
SET
p40 Colour adjustment display
MC SELECT color b&w
BRT 0
CONT 0
R-SUB 0
G-SUB 0
B-SUB 0
CENTER [>]
CANCEL [>]
Changes to Y-SUB, M-SUB, C-SUB when selecting SELECT :b&w
p40 Layout setting display
I or s is displayed when selecting THERMAL : on
ML MODE auto s
MULTI on off off(ps)
MODE same diff photo1
IMAGES 2 2s 4 16 card 3*4 5*5 3*3.5
SIZE wide middle narrow user
COPY off wide middle narrow
TOP 0
BOTTOM 0
LEFT 0
RIGHT 0
Displays only when selecting MULTI:on *2
2s is not displayed when selecting THERMAL : on
Displays only when selecting SIZE:user
p42 Print setting diplay
Only nor is available when using CK900S4P, CK900L4P,CK900S4P(HX)EU or CK900L4P(HX)EU, or selecting THERMAL : on
MP GRAD es echo nor
APT soft normal hard1 hard2
DIR normal reverse
MIRROR off on
PRN SP fast normal
Only normal is available when selecting IMAGES:2s or using CK900S4P(HX)EU or CK900L4P(HX)EU.
Only fast is avaliable when selecting THERMAL : on
p43 Comment making display
COMMENT off on[set] adj data
p44 Memory and Position setting display
MM LINE off on
H-POSI 0
V-POSI 0
H-START normal front
*2
When selecting MODE:diff,
IMAGES 2/2s/4/16 are available.
When selecting MODE:photo1,
IMAGES card/3*4/5*5/3*3.5 are available.
To Set Conditions display


p46 System setting display
SS;INC off
part page
BUZZER off tone1 tone2
REM Q'ty 10 0~20
REM NOTICE off buz prn b&p
REM SCREEN off on
ERR SCREEN off on
AUTO F&C off on
THERMAL off on
PAPER HOLD off on
INIT PRG all main ser
INIT off go[set]
Does not display when selecting THERMAL : on
Only off is available when selecting THERMAL : on
AUTO CUT off or on is displayed when selecting THERMAL : on
Displays only when selecting COLOR:each
p47 Gamma level setting display
SG;COLOR all each
SELECT red green blue
HI 0 128
MID 0 128
LOW 0 128
POINT LOW 32 95
POINT MID 96 159
POINT HI 160 223
p48 Layout setting display 2
SL;PRN VAREA 0 (-10~+10)
SEPARATE off on
MARGIN CUT off on
Only off is available when selecting THERMAL : on
p48 Analog colour adjustment display
Does not display when selecting INPUT:rgb in MAIN MENU. color is not displayed when selecting b&w
SA;INPUT color b&w
BRT 0 (-32~+31)
CONT 0 (-32~+31)
R-SUB 0 (-32~+31)
G-SUB 0 (-32~+31)
B-SUB 0 (-32~+31)
COLOR 0 (-10~+10)
APT 0 (-8~+7)
CENTER [>]
CANCEL [>]
Displays only when selecting INPUT:video or s-video
p45 SERVICE MENU display
S;SYSTEM [>]
;GAMMA ADJ [>]
;LAYOUT2 [>]
;ANA COLOR [>]
;INPUT [>]
;OUTPUT [>]
;KEY SET [>]
;RS232C [>]
;REMOTE [>]
;PREV ERR [>]
ER;SAVE prg.1 2 3 cancel
MENU *1
SET
SET
p49 Input signal setting display
SI;FIELD normal reverse
AFC off on
AGC off on
DCF off on
IN SYNC ttl sog 0.3v
Displays only when selecting INPUT:video
p50 Output signal setting display
SO;MONI RSUB 0 (-32~31)
MONI BSUB 0 (-32~31)
LIVE SEL ana dig
CONVERT off on
MEM SYNC ext int
OUT SYNC auto user
OUT SYNC 0.3v ttl
OUT SYNC nega posi
RGB SOG off on
Displays only when selecting OUT SYNC:user
p50 Button function setting display
SK;KEY LOCK off on
MEM&PRN off on r1 r2
MEM&STOP off part page
MEM&MONI off on
KEEP MONI off on
AUTO CLR off mem prn
CLR KEY part page all
p52 RS-232C signal setting display
S2;BAUD RATE 1200 2400 4800 9600
COMMAND TYPE a b c
RESPONSE off on
ERR RES OK nor ill inv all
NO DSR off on
p52 Remote signal setting display
SR;BUSY LEVEL low hi
PRINTING off 1 2 1&2
MECHA ERR off 1 2 1&2
MEDIA ERR off 1 2 1&2
MEM STOP off 1 2 1&2
STROBE 1V off 1 2 1&2
STROBE 2V off 1 2 1&2
REMAINING off 1 2 1&2
When either one of them is set to off, the other is available for setting.
p53 Previous error display
NO ERROR

MAIN MENU ITEMS

MAIN MENU is used to open sub-menus. The functions are set with the following 6 menus. The settings can be saved by SAVE PRG.

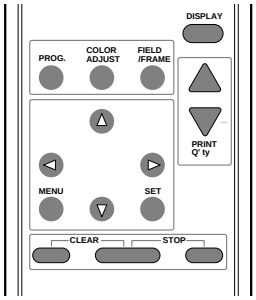
INPUT	Selects the input signal through the terminal on the rear panel
VIDEO	Signal from video signal input terminal
S-VIDEO	Signal from S-video signal input terminal
RGB	Signal from RGB signal input terminal
COLOR ADJ	Adjusts colour of printing image
LAYOUT	Adjusts the image layout setting
PRINT	Adjusts gamma characteristic, image outline, selects print direction, mirror print (left/right inversed) and printing speed
COMMENT	Making a comment
MEMORY POSITION	Selects print position
SAVE PRG	Stores the above settings in 1 of 3 program memories



Monitor display

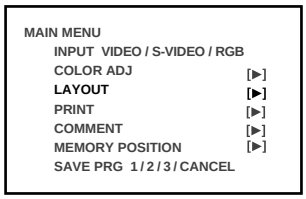
OPERATING MAIN MENU

Use buttons on the remote control unit to display MAIN MENU and select and set functions.



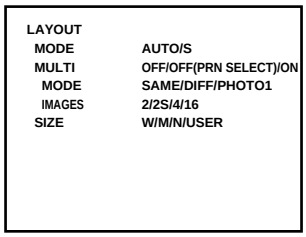
1 Press MENU button to display MAIN MENU.

2 Select your desired item by pressing ▲ or ▼.

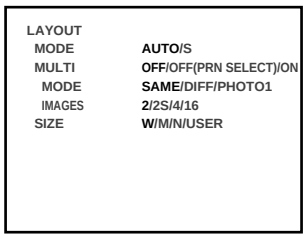


(EXAMPLE) Selecting LAYOUT display

3 Press ▶ button to open a sub menu.

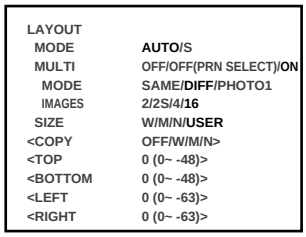


4 Select an item you wish to adjust by pressing ▲ or ▼.



5 Press ◀ or ▶ button to select an item or change value.

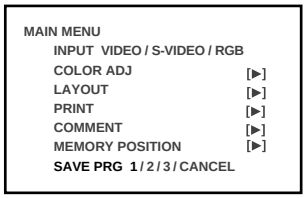
If you press MENU button, the settings will be cancelled and MAIN MENU is displayed.



6 Press SET button.

"SAVE PRG 1/2/3/CANCEL" is displayed.

This menu lets you select a program memory (1-3) to store your new settings.



7 Press ◀ or ▶ button to select the program memory numbers of 1, 2 or 3 to store the setting.

The program is replaced. In case of keeping the stored program, do not select the program memory number in which the setting is stored.

If you wish to cancel the setting, select CANCEL and press SET button.

8 Press SET button again.

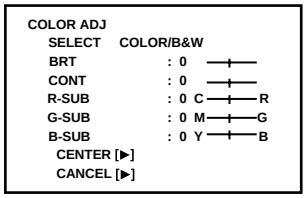
When selecting "PRG1" to set, "1" is chosen. When memorizing in a different program memory number, select the number of the program.

- As the program is replaced, it is recommended not to choose the program number which has been selected in the step 7.
- The memorized program will be selected by pressing PROG button, and the image which follows each setting is displayed. However, you cannot change the setting of selected program during printing. You can store only 1 kind of program set in COMMENT menu. The setting values of TOP, BOTTOM, LEFT and RIGHT in LAYOUT MENU can be memorized in each 2, 2S, 4, and 16 of IMAGES.
- The image will be printed according to the selected memory program.

NOTE

The settings can be stored in each program number 1~3 in MAIN MENU and SERVICE MENU. When selecting the program number in which the setting is stored, the same program numbers of MAIN MENU and SERVICE MENU are automatically selected. (When selecting Program 1 in MAIN MENU, Program 1 in SERVICE MENU is also selected automatically.)

COLOR ADJ Colour adjustment display



- The colour of the source image and memorized image can be adjusted.

SELECT Selects colour print or black and white print.
- **COLOR** Colour print
- **B&W** Black and white print (The monitor shows in colours.)

BRT(Bright) Adjusts brightness of the printing image. (The whole image will be adjusted.)

CONT (Contrast) Adjusts contrast of the printing image. (The image will be adjusted based on the black level.)

R-SUB Adjusts red-subcontrast of the printing image. Red is added with ▶ and blue is added with ◀.

G-SUB Adjusts green-subcontrast of the printing image. Green is added with ▶ and pink is added with ◀.

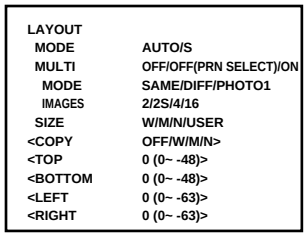
B-SUB Adjusts blue-subcontrast of the printing image. Blue is added with ▶ and yellow is added with ◀.

CENTER When pressing ▶, the values of BRT, CONT, R-SUB G-SUB and B-SUB will be reset to 0.

CANCEL Cancels the change of COLOR ADJ and resets to the stored setting.

- When selecting B&W, R-SUB, G-SUB and B-SUB change to Y-SUB, M-SUB, C-SUB. When selecting THERMAL : OFF (colour print), each value of Y-SUB, M-SUB and C-SUB is available to adjust the colour of the printed image. When selecting THERMAL : ON (thermal print), only Y-SUB value is available and function as the density of gray colour of the printed image.
- When SELECT is changed from COLOR to B&W, the set values of R-SUB, G-SUB and B-SUB function as the density of gray colour.

LAYOUT Layout setting display



MODE Selects the print size. Normally select the ink sheet size which is installed in this unit. (See page 17 for the print paper.)
- **AUTO** L size ink sheet.
  When S size ink sheet is installed, S size is automatically set.
- **S** S size ink sheet or S size printing with L size ink sheet, and S size printing with thermal paper.
- **L** L size printing with thermal paper.

- When using thermal paper (selecting THERMAL : ON in SYSTEM SETUP menu), AUTO/S is changed to L/S.

MULTI Selects ON or OFF for printing 2, 4, or 16 images on a sheet.
- **OFF** Multi-image print is not available. 1 image mode
- **OFF(PRN SELECT)** 4 memory pages display. 1 image mode.
- **ON** Multi-image print is available.

- When selecting OFF or OFF(PRN SELECT), MODE: SAME/DIFF/PHOTO1 and IMAGES : 2/2S/4/16 are not displayed.
- OFF(PRN SELECT) is not available for RS-232C equipment.
- When setting AUTO CLEAR to MEM or AFTER PRN in OFF(PRN SELECT), only selecting page is cleared.

MODE Selects print mode
- **SAME** Prints images of the same scenes on a sheet.
- **DIFF** (Different) Prints images of different scenes on a sheet.
- **PHOTO1** Prints images in Photo mode.

• This menu is displayed only when MULTI : ON is selected.

IMAGES Selects the number of images on a sheet. Is displayed when setting MULTI to "ON".
- **2** 2-images on a sheet. (2 S-size images can be printed in L size print. However, the top and bottom of the image will be clipped.)
- **2S** 2 reduced images on a sheet. (For L size print, the image can be printed without clipping by reducing S size images. In that case, the printing speed(PRN SPEED) becomes NORMAL. For S size print, 2 images can be printed as the same result as 2 mode.)
- **4** 4-images on a sheet
- **16** 16-images on a sheet

• 2S is not displayed when selecting THERMAL:ON.

• When selecting "MODE:PHOTO1", the following sizes are available.

CARD	Print size	20 mm x 15 mm
3*4	Print size	30 mm x 40 mm
5*5	Print size	50 mm x 50 mm
3*3.5	Print size	30 mm x 35 mm

SIZE Sets the print area of the image. Choose one from 3 preset print areas and a user select area.

	Printed image size of 1 image mode(mm)	
	(S size)	(L size)
W	100 x 75	125 x 94
M	94 x 70	118 x 89
N	90 x 68	113 x 85
USER	Optional size by user	

• Part of the image may be clipped from the print depending on the print size.

COPY Copys a printed image size which is set W, M, or N in size. The selected setting level is displayed as TOP, BOTTOM, LEFT and RIGHT. These levels become the changing base.

TOP/BOTTOM/LEFT/RIGHT
Sets the printing area of the image. Adjust the size with ◀ or ▶ button.
- **TOP** Shifts the upper end of the image (setting area : 0 to -48)
- **BOTTOM** Shifts the lower end of the image (setting area : 0 to -48)
- **LEFT** Shifts the left end of the image (setting area : 0 to -63)
- **RIGHT** Shifts the right end of the image (setting area : 0 to -63)

NOTE

- When monochrome signal is input, colours may not be added to the characters displayed on the monitor. In that case, set SELECT of ANALOG COLOR ADJ MENU to "B&W" in SERVICE MENU.
- When SIZE is set to "W" or the minus value is increased on H-POSI, the monitor screen may get darker according to the monitor connected. However, the image will be printed correctly.

PRINT Print setting display

PRINT	
GRAD	ES/ECHO/NOR
APT	S/N/H1/H2
DIR	NOR/REV
MIRROR	OFF/ON
PRN SPEED	FAST/NORMAL

GRAD (Gradation) Adjusts the gamma curve of images.
Selects the gamma curve among 3 kinds of the settings.

- **ES** Mainly when connecting to endoscope
- **ECHO** Mainly when connecting to ultrasound diagnostic equipment
- **NOR** Mainly when connecting to other equipment

• Only NOR is available when using CK900S4P, CK900L4P, CK900S4P(HX)EU or CK900L4P(HX)EU or selecting THERMAL : ON.

APT (Aperture) Controls apertures and reinforces or softens the contour of image.

- **S** (SOFT) Softens the contour.
- **N** (NORMAL) Does not perform APT.
- **H1** (HARD 1) Reinforces the contour.
- **H2** (HARD 2) Reinforces the contour more.

DIR (Print Direction) Selects printing direction. The left and right margin sizes will be different on L size paper.

- **NOR** The margin is made on the lower position.
- **REV** The margin is made on the upper position.

MIRROR Selects the mirror (left/right inversed) prints.

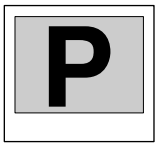
- **OFF** Normal print
- **ON** Mirror print

PRN SPEED (PRINTING SPEED) Sets the printing speed.

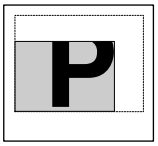
- **FAST** High speed printing (S size: 1280 dots (100 mm) x 600 lines (75 mm))
- **NORMAL** Prints lines in double density. (S size: 1280 dots (100 mm) x 1200 lines (75 mm))

• Only NORMAL is available when using CK900S4P(HX)EU or CK900L4P(HX)EU or selecting IMAGES : 2S.
Only FAST is available when selecting THERMAL : ON.

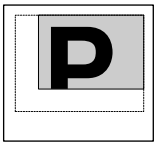
Example of SIZE, DIR and MIRROR setting
(This image is limited in printing with white by SIZE setting.)



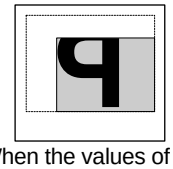
Standard print



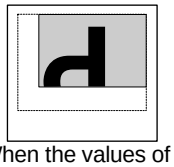
When the values of TOP and RIGHT are small



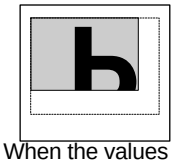
When the values of BOTTOM and LEFT are small



When the values of TOP and RIGHT are small and MIRROR is ON



When the values of TOP and RIGHT are small and DIR is REV



When the values of TOP and RIGHT are small and MIRROR is ON and DIR is REV

COMMENT Comment making display

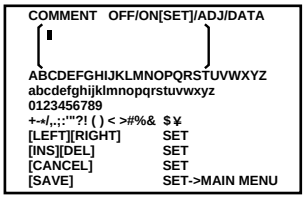
This menu is used to enter a comment.

① **Comment mode** Selects to display the comment or not.
- **OFF** Does not display the comment.
- **ON[SET]** Displays the comment.
  When pressing SET button during selecting ON, the editing display will be shown.
- **ADJ** Prints the set value made on APT, COLOR ADJ and ANALOG COLOR ADJ menu.
- **DATA** Prints total number of prints, each setting(AFC, AGC, GRAD, APT), image size, etc.

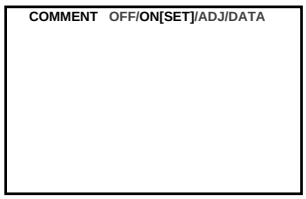
② **Comment display** Displays the comment in this part. 48 letters (24 letters x 2 lines) are available to input. Choose LEFT or RIGHT by ▲, ▼,◀, ▶ buttons, and select the position to input a letter.

③ **Character table** Selects the character to input with ▲, ▼,◀, ▶ buttons.

④ **Editing mode** Edits the letter and inputting position with ▲, ▼,◀, ▶ buttons.
- **INS** Select INS and press SET button to insert a space. When the cursor is on a letter, a space is inserted at the cursor position and the letters shift to right.
- **DEL** Select DEL and press SET button to delete the selected letter. The letters shift to left.
- **CANCEL** Select CANCEL and press SET button go back to the previous comment which has been memorized.
- **SAVE** Select SAVE and press SET button to memorize the comment.

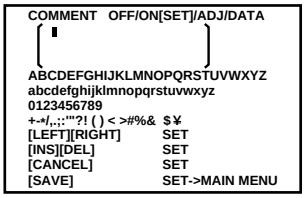


■ MAKING A COMMENT



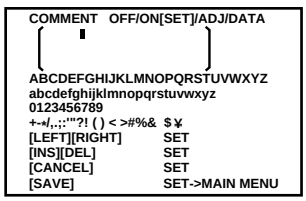
1 Select ON with ▶ button and press SET button.

The comment editing display appears.



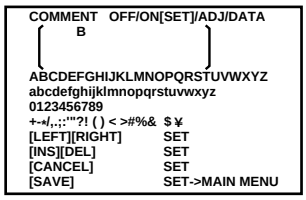
2 Select the position where the letter is inputted.

Choose LEFT or RIGHT with ▲, ▼,◀, ▶ buttons, and move the cursor.



3 Move the cursor to the character table with ▲, ▼,◀, ▶ buttons. Then, select a desired letter.

The selected letter will go on and off in red.



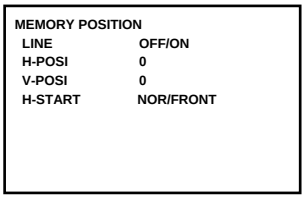
4 Press SET button.

The selected letter is inputted into the comment display block.
The cursor in the comment display block will move to right.

5 Repeat steps 2 to 4 to complete a comment.

- Skip 2 if you do not change the cursor position.
- Only one comment can be stored regardless of the program number you chose in SAVE PRG. Same comment will be stored in PRG.1 through PRG3. Different comments cannot be stored in each program.
- When printing in FIELD mode, the comment is a little lower in quality.

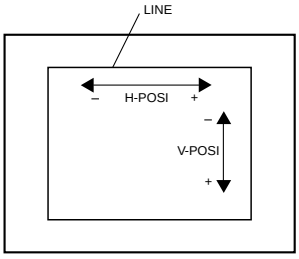
MEMORY POSITION Memory and Position setting display



- The print area settings made with this menu can be memorized as a user program setting.

LINE Selects whether showing a frame of print area or not.
OFF A frame of print area is not shown.
ON A frame of print area is shown.

- When LINE is set to “ON”, the monitor colour may be changed, or the image may become unstable horizontally, depending on the H-POSI setting. In this case, set LINE to “OFF”.
- When the frame becomes over the setting area, the frame colour turns black.
- The frame is not displayed on the memory image.



H-POSI Changes the horizontal start position of input signal
The whole data image can be moved horizontally by changing the setting number.
Setting area -8 ~ +8

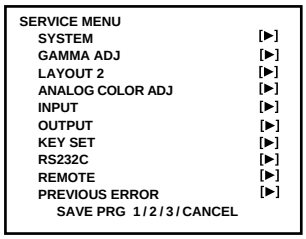
- When setting minus value too large, the right side of the memory image is clipped on the monitor. However, it is printed normally.

V-POSI Changes the vertical start position of input signal
The whole data image can be moved vertically by changing the setting number.
Setting area -10 ~ 0

H-START (H-Position)
Sets H-Position to special signal timing. Select “FRONT” when the image is unbalanced and cannot be corrected by H-POSI on basic printing. When selecting FRONT, AFC in SERVICE MENU does not work and the top part of the printing image may curved during VTR special play back.
NOR(Normal) When inputting PAL input signal
FRONT When inputting special input signal

SERVICE MENU ITEMS

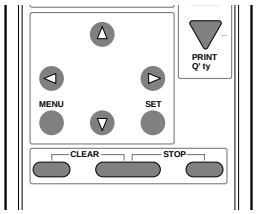
SYSTEM	Sets page increment, buzzer and remaining of ink sheet, selects thermal paper.
GAMMA ADJ	Sets gamma curve level.
LAYOUT2	Adjusts print layout setting.
ANALOG COLOR ADJ	Adjusts analog input signal image.
INPUT	Sets even/odd number of FIELD, adjusts display, input signals, etc.
OUTPUT	Sets sub-contrast of the monitor, sync. signal.
KEY SET	Selects the functions of the buttons and function of remote terminal.
RS232C	Selects baud rate.
REMOTE	Selects remote signal.
PREVIOUS ERROR	Shows error history.
SAVE PRG	Stores the above settings in 1 of 3 program memories



OPERATING SERVICE MENU

1 Press MENU button on the remote control unit.

MAIN MENU is displayed.



2 Press STOP buttons on the remote control unit at the same time.

SERVICE MENU is displayed.

3 Select your desired item by pressing ▲ or ▼ on the remote control unit.

4 Press ▶ button to open a sub menu.

5 Select an item you wish to adjust by pressing ▲ or ▼.

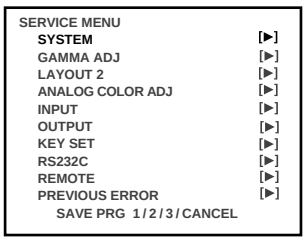
6 Press ◀ or ▶ button to select an item or change value.

7 Press SET button.

SERVICE MENU is displayed.

"SAVE PRG 1/2/3/CANCEL" is selected.

This menu lets you select a program memory (1-3) to store your new settings.

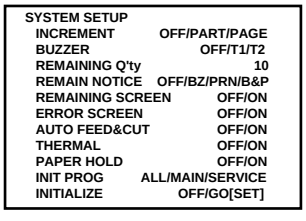


(EXAMPLE) Selecting SYSTEM SETUP display

8 Press ◀ or ▶ button to select the program memory numbers of 1, 2 or 3 to store the setting.

The program is replaced. In case of keeping the stored program, do not select the program memory number in which the setting is stored.

If you wish to cancel the setting, select "CANCEL".

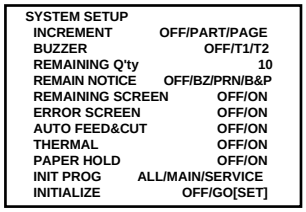


9 Press SET button.

When selecting PRG1 to set, "1" is chosen. When memorizing in a different program memory number, select the number of the program.

The setting is completed and the normal screen is displayed.

SYSTEM SETUP System setting display



INCREMENT

OFF Page increment is not available.

PART Every time pressing MEMORY button, memory part goes to the next part and image will be memorized on it. The memory page does not go to the next. When MULTI:OFF, this mode works and same as PAGE mode.

PAGE Every time pressing MEMORY button, memory page goes to the next page and image will be memorized on it.

BUZZER Selects the buzzer sound when pressing the buttons on the VCP and remote control unit.

OFF Does not sound the buzzer.

T1 Sounds the buzzer (Tone1).

T2 Sounds the buzzer (Tone2).

REMAINING Q'ty Sets the number of ink sheet to inform the remaining.

0 ~20 Informs by setting of REMAIN NOTICE when 0 to 20 ink sheet are left.

REMAIN NOTICE Selects the way to inform when the number of ink sheet is less than the set number in REMAINING Q'ty.

OFF Does not inform the remaining.

BZ The buzzer sounds three times when turning on the power, completing printing and closing the door. If the door is open when turning on the power, the buzzer sounds when closing the door.

PRN Informs by printing a red mark under the comment area on the print.

B&P The buzzer sounds three times and a red mark is printed under the comment area on the print.

- When selecting SELECT : B&W in COLOR ADJ, the red mark is printed in black-and-white.

REMAINING SCREEN Selects displaying the remains of ink sheet on the monitor or not.

OFF Does not display the remains of ink sheet on the monitor.

ON Displays the remains of ink sheet on the monitor.

- If a paper jam occurs, the remains of the ink sheet may be different from the indication on the monitor.

NOTE

When THERMAL is set to ON, REMAINING Q'ty, REMAIN NOTICE and REMAINING SCREEN are not displayed.

ERROR SCREEN Selects displaying the error on the monitor.

OFF When DISPLAY off is selected, the error is not displayed on the montor.

ON Even if DISPLAY off is selected, the error is displayed on the montor.

AUTO FEED&CUT Selects automatically feeding and cutting the print paper or not.

OFF Does not feed and cut the print paper.

ON When power is on and setting the print paper, this unit automatically feeds and cuts it twice after closing the front door.

- Only OFF is displayed when selecting THERMAL : ON.

THERMAL Selects the type of printing paper.

OFF Colour print paper.

ON Monochrome thermal paper.

- The image may not be printed correctly depending on the set of actual paper type, installation of ink sheet and condition of selecting menu. (Refer to the next page.)
- When using thermal paper, do not install the ink cassette.

PAPER HOLD Sets to hold the printed paper or not.
- **OFF** Printed paper is cut and released.
- **ON** Printed paper is held at the print outlet after cut. Pull the paper out when necessary.

- When selecting THERMAL : ON, this menu changes to AUTO CUT.
- It is recommended not to leave the printed paper holding at the print outlet. Some malfunction may occur.
- Do not turn off the power while holding paper.
- When PAPER HOLD is set to ON, MENU button and COLOR ADJ button on the remote control unit are not avilable.

AUTO CUT Selects cutting the printed thermal paper automatically or not.
- **ON** Cuts the printed thermal paper automatically.
- **OFF** Does not cut the thermal paper. Press MEMORY button while pressing MONITOR button.

- This menu is displayed only when THERMAL : ON is selected.

INIT PROG (Initialize program)
- **ALL** Mode to initialize the program in MAIN MENU and SERVICE MENU.
- **MAIN** Mode to initialize the program in MAIN MENU.
- **SERVICE** Mode to initialize the program in SERVICE MENU.

INITIALIZE
- **OFF** Does not initialize.
- **GO[SET]** Starts initializing. When SET button is pressed, initializing starts.

Setting and type of print paper / Print result

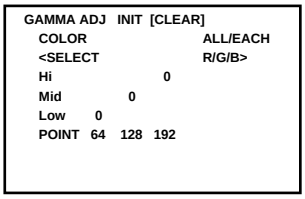
Setting / Type of print paper				Colour print paper		Monochrome thermal paper	
THERMAL	PAPER HOLD	AUTO CUT	MARGIN CUT	With ink cassette	Without ink cassette	With ink cassette	Without ink cassette
OFF	OFF	Not displayed	OFF	Normal colour print	Printing is not available. CHECK CASSETTE *1	Does not print correctly. *3	Printing is not available. CHECK CASSETTE *1
OFF	OFF	Not displayed	ON	Normal colour print with Margin cut			
OFF	ON	Not displayed	OFF	Normal colour print with Paper hold			
OFF	ON	Not displayed	ON	Normal colour print with Paper hold after margin cut			
ON	Not displayed	ON	OFF	Printing is not available.	Does not print correctly. *4	Printing is not available. REMOVE CASS TML *2	Cuts after thermal printing
ON	Not displayed	OFF	OFF	REMOVE CASS TML *2			Does not cut after thermal printing

*1, *2 This error is displayed when turning the power on, and closing the door.
*3 In this case, remove the thermal paper and install the colour print paper.
*4 In this case, remove the colour print paper and install the thermal paper.

NOTE

- When setting THERMAL to OFF after thermal printing with setting AUTO CUT to OFF, "PUSH FEED&CUT5" is displayed on the monitor and LCD. In this case, press MEMORY button with holding MONITOR button to cut the printed paper.
- When selecting AUTO CUT : OFF, make sure to cut the printed paper before turning off the power.

GAMMA ADJ Gamma level setting display



INIT:[CLEAR] Initializes each setting.

COLOR Selects the adjusting gamma level.
- **ALL** Adjusting gamma level for all colours.
- **EACH** Adjusting gamma level for each colour of R, G, B.

SELECT Is displayed when selecting "EACH" in COLOR.
- **R** Adjusting gamma level for red.
- **G** Adjusting gamma level for green.
- **B** Adjusting gamma level for blue.

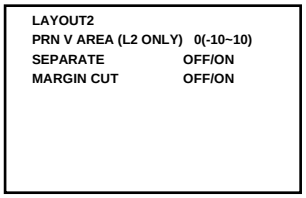
Changing gamma curve:
Use the ▲, ▼ buttons on the remote control unit to select the Hi/Mid/Low gamma point to set.
Also Use ◀, ▶ buttons to input setting level.

Hi/Mid/Low Adjusts the colour depth of image by selected point.
POINT(Hi/Mid/Low) Selects the point to adjust the colour depth.
(EXAMPLE) Pointing lighter colour much lighter;
Set the setting level for POINT(Hi) and Hi higher.

NOTE

It takes time to set the gamma value by CPU. Wait until the normal display is shown after pressing SET button.
It may also take time to switch the program when the value of gamma setting is changed.

LAYOUT2 Layout setting display 2



PRN V AREA Adjusts the vertical position of memory image.
Setting area -10 ~ 10 (adjusts 2 lines each)

- This menu is displayed only when IMAGES is set for 2 in L size paper.
- PRN V AREA permits adjustment of the vertical position of the image so that the clipped part of the image can be moved higher and lower.

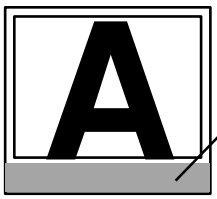
SEPARATE Selects whether a white frame is added to each print or not.
OFF Prints without white frame. (A white frame appears according to the settings of LAYOUT)
ON Prints with white frame.

MARGIN CUT Cuts the margin of the printed paper.

- This function is very convenient to stick the printed image on the card. The figure shows S size print paper setting.

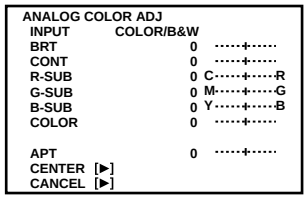
OFF Margin is not cut.
ON Margin is cut.

- Only OFF is displayed when selecting THERMAL : ON.



Gray part is cut when MARGIN CUT is ON.

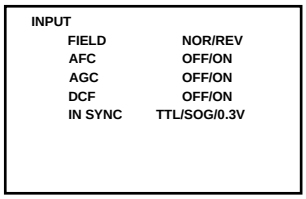
ANALOG COLOR ADJ Analog colour adjustment display



- This menu is used to adjust the image of analog input signal before storing in the memory.

INPUT Selects processing of video signal.
COLOR Processes as colour video signal.
B&W Processes as monochrome video signal. (The image is shown in black and white.) Select B&W when inputting monochrome signal.
BRT(Bright) Adjusts the brightness of the printing image.
CONT(Contrast) Adjusts the contrast of the printing image.
R-SUB Adjusts red-subcontrast of the printing image. Red is added with ▶ and blue is added with ◀.
G-SUB Adjusts green-subcontrast of the printing image. Green is added with ▶ and pink is added with ◀.
B-SUB Adjusts blue-subcontrast of the printing image. Blue is added with ▶ and yellow is added with ◀.
COLOR Adjusts density of the printing image. The colour of the image gets deeper with ▶ and lighter with ◀.
APT(Aperture) Adjusts the contour of image. The contour is reinforced with ▶ and softened with ◀.
CENTER Initializes each setting. When pressing ▶, the values of BRT, CONT, R-SUB, G-SUB, B-SUB,COLOR, and APT will be reset to the centre value.
CANCEL Initializes each setting in ANALOG COLOR ADJ.

INPUT Input signal setting display



- Set this menu before memorizing image.

FIELD The odd and even field lines will be reversed depending on the input interlaced signal. Printing image is not clear so that the odd and even field lines may be reversed depending on the input interlaced signal. In this case, FIELD is set to “REV”. (The image disorder cannot be seen in monitor display.)

NOR(Normal) Does not reverse FIELD as remaining the input interlaced signal.
REV(Reverse) Reverses the even and odd numbers of FIELD.

AFC (Automatic frequency control)

The image distortion on the top may occur when the VCR image is special input such as in pause, field-by-field playback, or FF playback mode. Also, the image is not printed correctly because of a weak TV signal. In this case, set the AFC function to “ON”.

- The image distortion on the top may occur by the special signal when AFC is set to “ON”. In this case, set to “OFF”.
- This function menu is invalid when selecting “FRONT” on H-START of MEMORY POSITION in MAIN MENU.

OFF AFC is invalid.
ON AFC is available.

AGC (Automatic gain control)

This function is to automatically adjust a dark picture in brightness and print with sharp contrast. Peak level of an input signal is detected and signal width is standardized to the appropriate value.

OFF AGC is invalid.
ON AGC is available.

- This function is not displayed when selecting RGB signal.

DCF This function selects whether separating the composite video signal or not. When inputting the monochrome signal, set this function to OFF. Input signal is not through DCF circuit, so that this function is for high quality of monochrome image. When inputting the colour composite signal, this function is set to “ON”. Input signal is through DCF circuit and the composite video signal is separated.

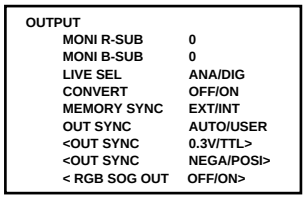
OFF When inputting monochrome signal
ON When inputting colour signal

- This function is not available when selecting RGB or S-VIDEO.

IN SYNC Selects the level of input sync.signal.

TTL Composite Sync.of TTL level
SOG Composite Sync.on Green
0.3V Composite Sync.of 0.3Vp-p level

OUTPUT Output signal setting display



MONI R-SUB Adjusts red-subcontrast on the monitor. Red is added with ▶ and blue is added with ◀.

MONI B-SUB Adjusts blue-subcontrast on the monitor. Blue is added with ▶ and yellow is added with ◀.

LIVE SEL(Live select) Switches the monitor display routes of input signal at LIVE mode with DISPLAY OFF. Selects to display input signal, or the reflection of image and adjustment on the monitor.

- **ANA**(Analog) Displays the image of input signal on the monitor.
- **DIG**(Digital) Displays the reflection of image and adjustment.

CONVERT This function is to output the signals which selected at INPUT in MAIN MENU to Video output terminal/RGB output terminal/ S-video output terminal.

- **OFF** Outputs to the same output terminal as the input terminal.
- **ON** Outputs to Video output terminal/RGB output terminal/S-video output terminal.

MEMORY SYNC Selects the Sync. signal for displaying memory image.

- **EXT** Selects Sync.output signal, and displays memory image.
- **INT** Selects Sync.input signal, and displays memory image.

- Selecting Sync.output signal may not display memory image correctly depending on the connection. In this case, set SYNC. to “INT”.
- When selecting INT and displaying memory image, comment is not displayed.

OUT SYNC Selects depending on the output of Sync signal.

- **AUTO** Selects the same signal as the one selected in IN SYNC.
- **USER** Selects by user.

OUT SYNC Selects the output level of H+V Sync signal of RGB signal.

- **0.3V** 0.3 Vp-p
- **TTL** TTL level

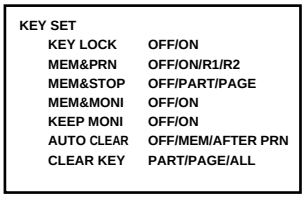
OUT SYNC Selects the polarity of H+V Sync. output signal of RGB signal. Set the polarity according to the monitor connected. See the operation manual of the monitor for the polarity.

- **NEGA** Negative polarity
- **POSI** Positive polarity

RGB SOG OUT Selects the sync.signal output from RGB analog output terminal on the rear panel.

- **OFF** Outputs Composite sync. signal only.
- **ON** Outputs Sync. On Green signal.

KEY SET Button function setting display



KEY LOCK Makes the function on the remote control unit buttons invalid.

- **OFF** All buttons on the remote control unit are available.
- **ON** The function on the remote control unit buttons, except MEMORY, PRINT, MONITOR and MEMORY PAGE are not available. When pressing MENU button, KEY SET menu is displayed. When pressing MENU button, only selecting OFF/ON of KEY LOCK is available.

MEM&PRN(Memory and Print)

When pressing MEMORY button, the image is automatically printed after the image is stored in the memory. In case of multi image of different scenes, printing will be done after the last image is stored in memory.

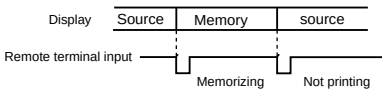
OFF MEMORY button functions individually. The image is memorized without printing.

ON Automatically prints after memorizing.

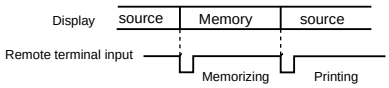
R1 When a signal inputted through a memory key (pin No.2) of the remote terminal on the rear panel is switched to “low” level from “high” for the first time, a memory image is displayed. Then at the second time, a source image is displayed without printing the memory image.

R2 On the KEEP MONI OFF status, when a signal inputted through a memory key (pin No.2) of the remote terminal is switched to “low” level from “high” for the first time, a memory image is displayed. Then at the second time, a source image is displayed and the memory image is printed.
Do not change MULTI setting after memorizing an image.

R1



R2 (When KEEP MONI :OFF)



MEM&MONI(Memory and Monitor)

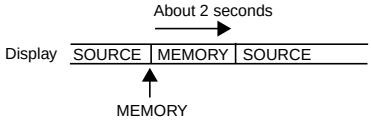
Switches the monitor display between the source image and memory image after memorizing.

OFF Displays the source image.

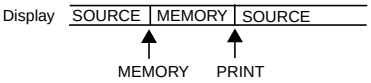
ON Displays the memory image.(Initial setting)

- When KEEP MONI is set to OFF, the source image will be displayed when starting printing.

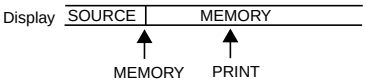
MEM&MONI : OFF



MEM&MONI : ON
KEEP MONI : OFF



MEM&MONI : ON
KEEP MONI : ON



KEEP MONI Selects the image displayed on the monitor during printing.

OFF Displays the source image after starting printing.

ON Displays the source image after starting printing, when indicating it before printing. Displays the memory image after starting printing, when indicating it before printing.

AUTO CLEAR

OFF The printed memory image is not cleared.

MEM When MULTI is set to ON, the memory image is cleared after memorizing on the printed memory page again.

AFTER PRN The printed memory image is cleared after completing printing.

- For continuous printing, the stored image are cleared by above settings after completing printing the setting numbers of print.

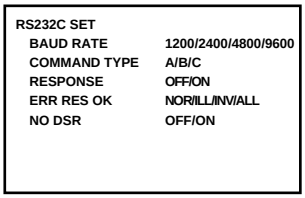
CLEAR KEY

PART Pressing CLEAR button on the remote control unit, the selected one MULTI image is cleared.

PAGE Pressing CLEAR button on the remote control unit, images of the memorized page being selected are cleared.

ALL Pressing CLEAR button on the remote control unit, all of the stored images are cleared.

RS232C SET RS-232C signal setting display



- This menu does not work when selecting THERMAL : ON or MULTI : OFF(PRN SELECT).

BAUD RATE Set the baud rate of RS-232C.
Set the baud according to the connecting device.

COMMAND TYPE Sets the command type of RS-232C.
Selects the command type of RS-232C to control this unit.

- Select “A” for normal setting. Depending on the connected equipment, select “B” or “C”.

RESPONSE Selects whether this unit sends RS-232C response to the host computer or not.

OFF Does not send response.
ON Sends normal response.

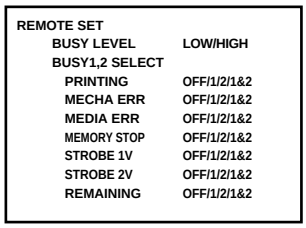
ERR RES OK Selects the response code when an error occurs.

NOR Sends the regular response.
ILL Sends “job end” even if ILLEGAL error occurs.
INV Sends “job end” even if INVALID error occurs.
ALL Sends “job end” when any error occurs.

NO DSR Sets to use 232C, DSR and DTR.
Sets “NO DSR” according to the connecting device.

OFF Uses NO DSR.
ON Does not use NO DSR.

REMOTE SET Remote signal setting display



BUSY LEVEL Selects the level of BUSY signal from the remote terminals 1 and 2 on the rear panel.

LOW The VCP cannot accept the remote input signal when the signal is “LOW”.
HIGH The VCP cannot accept the remote input signal when the signal is “HIGH”.

- The default setting is “HIGH”.

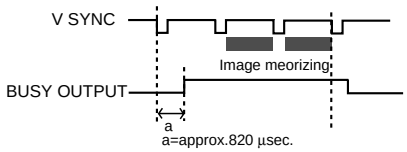
BUSY 1,2 SELECT Selects when the BUSY signal is outputted from the remote terminals 1 and 2 on the rear panel.

PRINTING Outputs BUSY signal during printing.
MECHA ERR Outputs BUSY signal when a mechanical error occurs in this unit or IC chip is not installed. BUSY signal is also outputted when the printing mechanism is pulled out or the menu is displayed on the monitor.
MEDIA ERR Outputs BUSY signal when an error for paper or ink sheet occurs.
MEMORY STOP Outputs BUSY signal when MEMORY button is not functioning.
STROBE 1V After outputting BUSY signal, memory is taken in by waiting to 1 vertical period.
STROBE 2V After outputting BUSY signal, memory is taken in by waiting to 2 vertical periods.
REMAINING Outputs BUSY signal while the remains of ink sheet becomes the value set in REMAINING Q’ty.

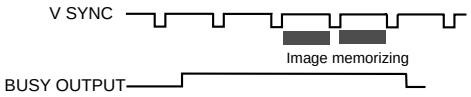
- When either STROBE 1V or STROBE 2V is set to OFF, the other is available for setting.

■ SYNCHRONOUS SETTING FOR MEMORY

STROBE : 1V, BUSY LEVEL: HIGH in REMOTE SET of SERVICE MENU



STROBE : 2V, BUSY LEVEL: HIGH in REMOTE SET of SERVICE MENU



The numbers in the above figures are just references. The timing may be different according to the setting.

PREVIOUS ERROR Error display

This function displays the most recent types of error.

PREVIOUS ERROR
NO ERROR
NO ERROR
NO ERROR

ERROR MESSAGES

If for some reason printing is not possible or error occurs during printing, the error message will be displayed on the monitor screen or LCD.
In this case, follow the procedure described below.

Error messages	Causes	Countermeasures
DOOR OPEN	The printing mechanism is not locked completely.	• Insert the printing mechanism until it is locked in the unit.
CHANGE PAPER	Paper is used up.	• Set a new roll of paper. Refer to pages 17-18. *Note : 1
CHANGE INK	The ink sheet is used up.	• Replace the ink sheet with a new one. Refer to pages 18-19.
SET CASSETTE CHECK CASSETTE	The ink cassette is not installed.	• Install the ink cassette. Refer to pages 18-19.
REMOVE CASS TML	Ink cassette is installed when selecting THERMAL :ON.	• Remove the ink cassette.
SET PAPER	Paper is not installed.	• Set paper correctly.
OVER HEAT	The temperature of the thermal head becomes too high.	• Wait until the message goes off. *Note : 2
CHECK INK 1* (*: 1~7)	IC chip is not installed. The data in IC chip cannot be read correctly.	• Use an ink sheet with the attached IC chip. • Set the attached IC chip on an ink sheet. • User the correct ink sheet with IC chip.
CHECK INK 4	IC chip and the ink mark are not the same. A wrong media type is set.	• Use correct IC chip and ink sheet.
REMOVE PAPER 11 REMOVE PAPER 12	Paper jam occurs.	• Refer to page 57 “Overcoming paper jams”. Press MEMORY button for more 1 second while pressing the MONITOR button. *Note :3
REMOVE PAPER 13	Paper jam occurs when selecting THERMAL:ON.	
CHECK EXIT *Note : 4	Paper is left in the paper outlet.	• Remove the paper.
MECHA ERROR 20 MECHA ERROR 30 MECHA ERROR 40	Other defects.	• Press MEMORY button for more 1 second while pressing the MONITOR button. *Note :3 In case of paper jam, refer to page 57 “Overcoming paper jams”. If the status is not improved by carrying out this measure, consult your dealer.
OTHERS	Other defects.	• Consult your dealer.

*Note : 1 The image may not be printed completely.
*Note : 2 When setting the continuous printing, the continuous printing is carried out after the error message goes off.
*Note : 3 This is an operation for initialization. **Make sure to press the MONITOR button first.** If MEMORY button is pressed first, a new image will be stored in memory erasing any previously stored image.
*Note : 4 During error status, the buzzer keeps sounding.

Other messages

Messages	Causes and countermeasures
PUSH FEED&CUT	Indicated when the power is turned on after turning off during printing. Press MEMORY button for more than one second while pressing MONITOR button. This is initializing. **Make sure to press MONITOR button first.**
MECHA INITIALIZE	Indicated during initializing.
PRINT STOP	In the case of pressing STOP button on the remote control during printing, this unit is initialized. This message is indicated during initializing.

NOTE

- FEED&CUT (paper feeding and cutting) may not work when “PUSH FEED&CUT*” or “MECHA ERROR**” is displayed. In this case, pull the printing unit out to remove the print paper and re-install it. Then, close the printing unit and press MEMORY button while pressing MONITOR button again.
- If turning off the power during printing or stand-by, and turn on the power again with THERMAL : ON and AUTO CUT : OFF, “PUSH FEED&CUT*” is displayed. In this case, make sure to remove the printed part with scissors etc, and press MEMORY button while pressing MONITOR button to feed & cut.

BEFORE CALLING FOR SERVICE

■ Use the following troubleshooting chart to try to resolve any apparent defect in operation. If you are unable to resolve the problem, unplug the power cord and contact your dealer.

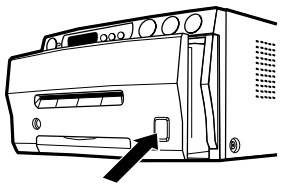
Symptom	Check and Remedy
No power (when POWER lamp does not illuminate)	Is the power cord plug disconnected from the outlet? →Connect the power cord plug to the outlet firmly. After tuning the power off, wait for approx. 2 minutes. Then turn on the power.
No image appears on the monitor.	Are the IN SYNC, the OUT SYNC and the RGB SOG OUT set correctly? →Check the current setting. Refer to pages 11-16. Are the video signal and sync. signal inputted to this unit? →Check the connection. Refer to pages 11-16. Is the input signal on the menu screen (INPUT : VIDEO, S-VIDEO, RGB) selected correctly? →Check the current setting. Refer to pages 22-23. Is the image stored in memory displayed on the monitor screen? →Press MONITOR button to display the source image (LIVE).
The image on the monitor screen vibrates when characters are indicated on the monitor screen or LIVE SEL is set to “DIG”. Refer to page 49.	Are the sync. polarity of the monitor (OUT SYNC: NEGA POSI), the output level of the sync. signal (OUTPUT SYNC) and the RGB output sync. signal (RGB SOG OUT) set correctly? →Check the current setting. Refer to pages 11-16.
The image is not stored in memory.	Are the images being printed with full memorized memory page? →Press the CLEAR button on the remote control unit after printing. Then, store the image in the memory again. Is the memory full in the status of “INCREMENT : OFF” or “AUTO CLEAR : OFF”? →Store the image in the memory after pressing the CLEAR button on the remote control unit. (According to the setting conditions, the image can be stored in the memory by setting INCREMENT to “PART” or “PAGE”, AUTO CLEAR to “AFTER PRN” or pressing the PRINT button.) Is the memory full in the status of “MEM & STOP : ON”? →Press CLEAR button on the remote control, and store the image again.
The image is not printed.	Is the image stored in memory? →Confirm that the image is stored in memory. Is the print paper or ink sheet used up? →Check the status. Is the printing mechanism set correctly? →Set the printing mechanism correctly.

Symptom	Check and Remedy
The stored image in the memory cannot be enlarged to fill the maxim print area.	Is the S size ink sheet installed when selecting “S” in MODE : AUTO/S? Or is the L size ink sheet installed when selecting “AUTO” in MODE : AUTO/S? →Check the current setting. Refer to pages 23-24. Is the paper size set to “N” in the size setting in LAYOUT menu? →Set the size to “M” or “W”. Refer to pages 34, 41. Is the print area set correctly in LAYOUT menu? →Check the setting of the print area. Refer to pages 40-42.
The colour or picture quality is different between the memorized image and the printed image.	Is the colour of the image stored in the memory adjusted? → Adjust the colour of the image stored in the memory with Colour adjustment display (COLOR ADJ). Refer to page 40.
When inputting monochrome image signal (without burst signal), sync. becomes unstable.	Is INPUT in ANALOG COLOR ADJ set to “COLOR”? → Set INPUT to “B&W”. Refer to page 48.
The colour or picture quality is different between the image on the monitor screen and the printed image. (When the colour and picture quality are same between the image stored in the memory and the printed image.)	Is the image on the monitor screen adjusted? → Adjust the image on the monitor screen with “MONI R-SUB” and “MONI B-SUB” in the OUTPUT menu. Refer to page 50.
The set comments do not appear on the print paper.	Is the COMMENT set to “OFF”? → Set COMMENT to “ON”. Refer to page 43. Is the comment inputted? → Input the comment on the menu. Refer to pages 43-44.
Wired remote control unit cannot be operated.	Is the plug of the remote control unit disconnected from its terminal on the unit? → Connect the plug of the remote control unit to the REMOTE terminal on the unit. The supplied remote control unit can not be used by connecting to the external remote terminal on the rear panel of this unit. Is the wired remote control unit for this unit (accessory) used? → Use the remote control unit for this unit. Is PAPER HOLD set to “ON”, and is printed paper kept at the print outlet? → Remove the printed paper from the print outlet. Is KEY LOCK set to “ON”? → Set KEY LOCK to “OFF”.
The printing unit cannot be opened.	Is the paper cut after prinitng with THERMAL : ON and AUTO CUT : OFF? → Press MEMORY button while pressing MONITOR button to cut the printed paper.

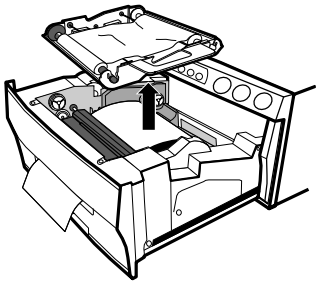
OVERCOMING PAPER JAMS

1 Press OPEN button to pull out the printing mechanism.

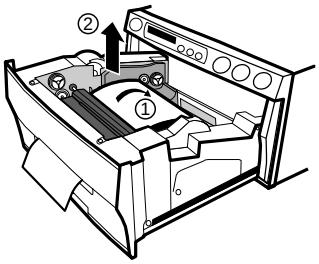
When it is not working, turn off the power once. Then try to press OPEN button again.



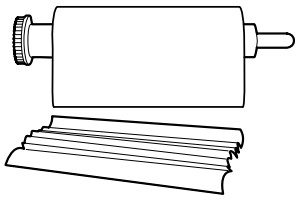
2 Remove the ink cassette with ink sheet.



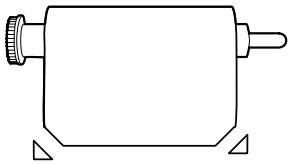
3 Remove the print paper as shown right.



4 Cut the defective part of the print paper with scissors.



5 Cut both edges of the print paper.

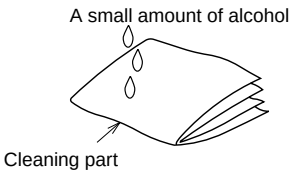


6 Install the print paper. (Refer to pages 17-18.)

NOTE

To feed the print paper, press MEMORY button while pressing MONITOR button. When carrying out this procedure, make sure to press MONITOR button first. If MEMORY button is pressed first, a new image will be stored in memory and the previously memorized image will be erased.

CLEANING



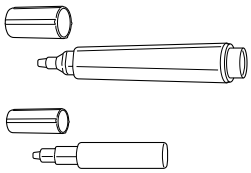
How to hold tissue paper

Cleaning as indicated below will help maintain stable printer operation and extend the printer's life.

Preparations

Alcohol (isopropyl alcohol)
Tissue paper (Fold in half about 4 times, and use the folded side to clean.)
Cotton buds
Cleaning kit (Option)*

Other : Cleaner pen (Option)*
*Please ask the dealer about options.

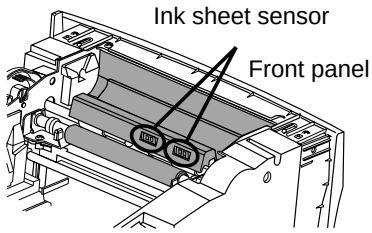


Cleaner pen (Option)

Make sure to turn off the power before cleaning.

1 Press OPEN button to pull the printing mechanism out.

2 Remove the ink cassette and print paper.

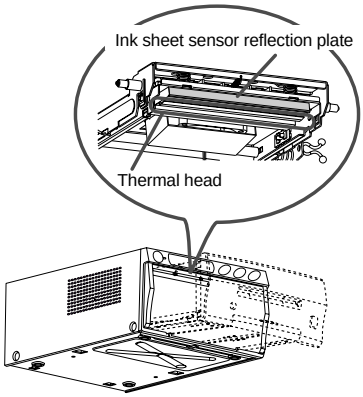


3 Wipe the ink sheet sensor.

Clean the parts circled in the right figure.
Wipe with tissue paper etc. which is soaked in a small amount of alcohol carefully.

4 Wipe the ink sheet sensor reflection plate.

Clean the metal reflection plate.
Wipe with tissue paper etc. which is soaked in a small amount of alcohol carefully.



5 Wipe the head.

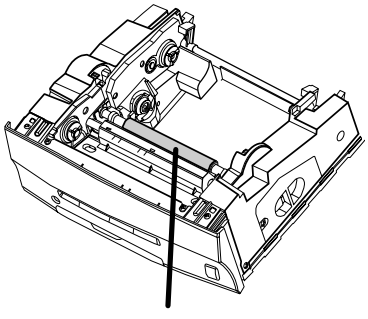
Cleaning the part under the thermal head which develops heat.
Wipe the head cleaning part carefully with tissue paper etc. which is soaked in a small amount of alcohol.

NOTE

- Do not damage the thermal head.
- When the symptom of the poor print quality is not corrected even if the head is cleaned, replacing the thermal head is required. Contact your dealer.
- Thermal head is hot right after printing. Wait until the head temperature is low when cleaning the thermal head.

6 Clean the rubber roller.

The seal paste and dust etc. are stuck on the rubber roller if you use it for a long time.
Wipe with tissue paper etc. which is soaked in a small amount of alcohol carefully.



Rubber roller

SPECIFICATIONS

Class	Colour Video Copy Processor		
Model	CP900E		
Printing method	Sublimation Dye Thermal		
	3 colour faces progressive printing (yellow, magenta and cyan) and surface lamination		
Print quality	Dot resolution	Max. 1280 x 600 pixels (S size / FAST mode)	
	Number of grades	256 (8 bits) for each colour (About 16.7 million colours)	
Printing time*	L size Approx. 22 sec./sheet (When using CK900L / 1-image/FAST mode)		
	S size Approx. 12 sec./sheet (When using CK900S / 1-image/FAST mode)		
Ink sheet	Special cartridge method		
Print paper	Special roll paper	L size 160 x 110mm	
(1 image mode)	Printing area	Wide mode	125 x 94mm
		Middle mode	118 x 89mm
		Narrow mode	113 x 85mm
	Special roll paper	S size 110 x 105mm	
	Printing area	Wide mode	100 x 75mm
		Middle mode	94 x 70mm
		Narrow mode	90 x 68mm
Supply method	Automatic (roll paper)		
Input terminal	RGB analog (4 BNC type connectors)		
	Composite video (1 BNC type connectors)		
	S-VIDEO (1 S-VIDEO terminal)		
Output terminal	RGB analog (4 BNC type connectors)		
	Composite video (1 BNC type connectors)		
	S-VIDEO (1 S-VIDEO terminal)		
Input/Output terminal	RS-232C (D-SUB 25 pin)		
	Remote terminal (Mini Din 8 pin, stereo mini jack)		
Input frequency	H frequency 15.75 kHz		
	V frequency 50Hz		
Power supply	AC 220-240V, 50Hz		
Power consumption	1.2A (AC220-240V, 50Hz) during priting (0.3A when not printing)		
Installation conditions	Temperature :	5°C - 40°C (41°F - 104°F)	
	Humidity :	20% - 80% (No dewing)	
Operation altitude	Within Horizontal ±5°		
Outside dimensions	280(W) x 150(H) x 400(D) mm		
Weight	11kg		
Accessories	Power cord (1), Ink cassette (1), Operation manual (1), Remote control unit(1), Spacer (4),		
	Screw(4), Attachments for thermal paper (1 set)		

*Printing time : time between pressing PRINT button and sounding buzzer which informs the print end

OPTIONS

■ PAPER SHEET SET

Product name	Ink sheet size	No. of prints	Usage
CK900S	S size	200	Colour print
CK900L	L size	130	Colour print
CK900S4P	S size	130	Surface-laminated colour print
CK900L4P	L size	90	Surface-laminated colour print
CK900S4P(HX)EU	S Size	130	Surface-laminated colour print for ID photo
CK900L4P(HX)EU	L Size	90	Surface-laminated colour print for ID photo

■ THERMAL PAPER

Product name	Print size	No. of prints		Usage
K65HM-CE	S/L size	S size	Approx. 200	Thermal print
		L size	Approx. 125	

■ PAPER INK SHEET CASSETTE

Product name	Ink sheet size	No. of prints	Usage
PKC900S	S size	200	Colour print
PKC900L	L size	130	Colour print

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